Series 1961, No. 16

Issued March 1965

SOIL SURVEY

Wayne County, Georgia

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATIONS

HOW TO USE THE SOIL SURVEY REPORT

THIS SOIL SURVEY of Wayne County, Ga., will serve several groups of readers. It will help farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; aid foresters in managing woodlands; and add to our knowledge of soil science.

Locating soils

Use the index to map sheets at the back of this report to locate areas on the large map. The index is a small map of the county on which numbered rectangles have been drawn to show where each sheet of the large map is located. When the correct sheet of the large map has been found, it will be seen that boundaries of the soils are outlined, and that there is a symbol for each kind of soil. All areas marked with the same symbol are the same kind of soil, wherever they occur on the map. The symbol is inside the area if there is enough room; otherwise, it is outside the area and a pointer shows where the symbol belongs.

Finding information

This report contains sections that will interest different groups of readers, as well as some sections that may be of interest to all.

Farmers and those who work with farmers can learn about the soils in the section "Descriptions of the Soils" and then turn to the section "Use and Management of Soils." In this way, they first identify the soils on their farm and then learn how these soils can be managed and what yields can be expected. The "Guide to Mapping Units" at the back of the report will simplify use of the map and report. This guide lists each soil and land type mapped in the county, and the page where each is described. It also lists, for each soil and land type, the capability unit, the woodland suitability group, the wildlife suitability group, and the page where each of these is described.

Foresters and others interested in woodlands can refer to the subsection "Uses of Soils as Woodland." In that subsection the soils in the county are grouped according to their suitability for trees, and factors affecting the management of woodland are explained.

Engineers and other builders will want to refer to the subsection "Engineering Uses of Soils." Tables in that subsection show characteristics of the soils that affect engineering.

Scientists and others who are interested will find information about how the soils were formed and how they are classified in the section "Formation and Classification of Soils."

Students, teachers, and other users will find information about soils and their management in various parts of the report, depending on their particular interest.

Newcomers in Wayne County will be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the subsection "Wildlife and Fish" and in the section "General Nature of the County," which give additional information.

* * * * *

Fieldwork for this survey was completed in 1961. Unless otherwise indicated, all statements in the report refer to conditions in the county at the time the survey was in progress. The soil survey of Wayne County was made as part of the technical assistance furnished by the Soil Conservation Service to the Satilla River Soil Conservation District.

Cover picture: Ditch adequately drains this very poorly drained Rutlege sand and helps to insure well-stocked stands and good growth of pines.

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Contents

	Page
How soils are mapped and classified	1
General soil map	2
Tifton-Irvington-Goldsboro soil association	2
Plummer-Rutlege-Leon soil association	3
Lakeland-Gilead soil association	3
Lakeland-Klej-Leon soil association	3
Weston-Bladen-Coxville-Bayboro soil association	4
Swamp-Wet alluvial land soil association	4
Descriptions of the soils	4
Bayboro series	5
Bladen series	6
Blanton series	7
Coxville series	7
Dunbar series	7
Eulonia series	8
Gilead series	8
Goldsboro series	10
Grady series	10
Irvington series	11
Klej series	11
Lakeland series	12
Lakewood series	13
Leon series	13
Lynchburg series	14
Meggett series	14
Norfolk series	15
Ona series	15
Plummer series	16
Portsmouth series	16
Rains series	17
Rutlege series	17
Sawyer series	18
St. Johns series	18
Sunsweet series	18
Susquehanna series	19
Swamp	19
Tifton series	19
Wahee series	21
Weston series	21
Wet alluvial land	22
Use and management of soils	22
Crops and pasture	22
Capability groups of soils	22
Management by capability units	23
Estimated yields	32
Uses of soils as woodland	34
Woodland suitability groups of soils	34
Protective practices	38

	Page
Use of management and soils—Continued	
Wildlife and fish	38
Food and cover needed by wildlife	38
Wildlife suitability groups	39
Planning for wildlife	42
Engineering uses of soils	42
Engineering classification of soils	43
Soil test data	43
Engineering descriptions and physical properties	43
Features affecting engineering work	44
Formation and classification of soils	46
Formation of soils	46
Parent material	46
Plants and animals	47
Climate	60
Relief	60
Time	60
Classification of soils	60
Red-Yellow Podzolic soils	60
Norfolk and Tifton soils	62
Goldsboro and Irvington soils	62
Gilead and Sawyer soils	62
Dunbar, Eulonia, and Lynchburg soils	63
Susquehanna and Sunsweet soils	64
Wahee soils	64
Humic Gley soils	64
Rutlege, Portsmouth, and Bayboro soils	65
Low-Humic Gley soils	65
Bladen, Coxville, and Meggett soils	65
Weston and Rains soils	66
Plummer and Grady soils	66
Ground-Water Podzols	67
Leon, St. Johns, and Ona soils	67
Regosols	68
Blanton, Klej, and Lakeland soils	68
Lakewood soils	68
General nature of the county	68
Organization and settlement	68
Agriculture	68
Water supply	69
Transportation, markets, and industry	69
Community facilities	69
Climate	69
Literature cited	71
Glossary	72
Guide to mapping units	74

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SOIL SURVEY OF WAYNE COUNTY, GEORGIA

BY D. GRAY AYDELOTT, HERSCHEL L. PAULK, AND DANIEL D. BACON, SOIL CONSERVATION SERVICE [1]

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE, AGRICULTURAL EXPERIMENT STATIONS

WAYNE COUNTY is in the southeastern part of Georgia (fig. 1) and is entirely within the Coastal Plain geographic area. The total land area is 413,440 acres, or 646 square miles. Jesup, the county seat, is near the Altamaha River and about midway between the eastern and western boundaries of the county.

About 85 percent of the total land area in Wayne County is woodland, about one-third of which is owned by farmers and other individuals. Tobacco, cotton, watermelons, peanuts, and pecans are important cash crops on many farms. Corn is the most extensive crop and is grown for food and for livestock feed. Much of the income from farming is derived from the sale of livestock and livestock products.

How Soils Are Mapped and Classified

Soil scientists made this survey to learn what kinds of soils are in Wayne County, where they are located, and how they can be used. They went into the county knowing they would find many soils they had already seen, and perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nation-wide uniform procedures. To use this report efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Tifton and Norfolk, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that go with their behavior in the natural, untouched landscape. Soils of one series can differ somewhat in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man.

Many soil series contain soils that differ in texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. Tifton loamy sand is a soil type in the Tifton series.

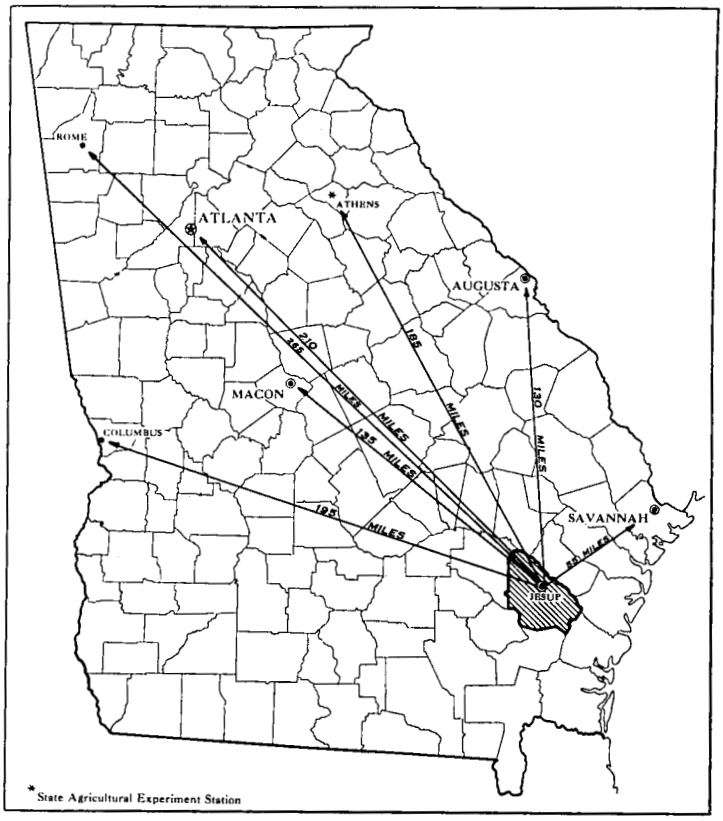

Figure 1.—**Location of Wayne County in Georgia.**

Some soil types vary so much in slope, degree of erosion, number and size of stones, or in some other feature affecting their use, that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into phases. The name of a soil phase indicates a feature that affects management. For example, Tifton loamy sand, 2 to 5 percent slopes, is one of several phases of Tifton loamy sand, a soil type that, in this county, ranges from level to gently sloping.

[1] Assistance in conducting the soil survey was given by E. M. STONE and R. H. GILBERT, Soil Conservation Service.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that greatly help in drawing boundaries accurately. The soil map in the back of this report was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil type or soil phase.

In preparing some detailed soil maps, the soil scientists have a problem of delineating areas where different kinds of soils are intricately mixed, and so small in size, that it is not practical to show them separately on the map. Therefore, they show this mixture of soils as one mapping unit and call it a soil complex. Ordinarily a soil complex is named for the major kinds of soil in it, for example, Bladen-Coxville-Weston complex. Also, on most soil maps, areas are shown that are so rocky, so shallow, or so frequently worked by wind and water that they scarcely can be called soils. These areas are shown on a soil map like other mapping units, but they are given descriptive names, such as Swamp or Wet alluvial land and are called land types rather than soils.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soils. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the soil map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in a way that it is readily useful to different groups of readers, among them farmers, ranchers, managers of woodland, engineers, and homeowners. Grouping of soils that are similar in suitability for each specified use is the method of organization commonly used in the soil survey reports. Based on the yield and practice tables and other data, the soil scientists set up trial groups, and test them by further study and by consultation with farmers, agronomists, engineers, and others. Then, the scientists adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

After a soil scientist studies the soils in a locality and the way they are arranged, he can make a general map that shows several main patterns of soils. Such a map is the colored general soil map at the back of this report. The areas shown on it are called soil associations. Each association, as a rule, contains a few major soils and several minor soils, in a pattern that is characteristic though not strictly uniform.

The soils within any one association are likely to differ from each other in some or in many properties, for example, slope, depth, stoniness, or natural drainage. Thus, the general soil map shows, not the kind of soil at any particular place, but patterns of soils, in each of which there are several different kinds of soils.

Each soil association is named for the major soil series in it. The major soils of one soil association may also be present in another association, but in a different pattern.

The general map is useful to people who want a general idea of the soils, who want to compare different parts of a county, or who want to know the possible location of good-sized areas suitable for a certain kind of farming or other land use.

Wayne County lies in the flatwoods section of the Coastal Plain. Soil associations 2, 5, and 6 are low and nearly level, and they contain mostly soils that are poorly drained, very poorly drained, or swampy. Soil associations 1, 3, and 4 contain rolling uplands, sandy ridges, poorly drained sandy flats, and poorly drained soils in ponds, along drainageways, and on bottom lands.

1. Tifton-Irvington-Goldsboro soil association: Moderately well drained and well drained soils on Coastal Plain uplands

This soil association is on nearly level to rolling uplands that have been dissected by many small, intermittent streams and by a few perennial streams. Most of the nearly level parts of the association are broken by small, round, ponded areas of poorly drained soils. The largest single area of this association is in the southwestern part of the county, west of Little Satilla Creek. One of two smaller areas is near Madray Springs, in the northern part of the county, and the other is southeast of Jesup, near Bethlehem Church. The association amounts to about 20 percent of the county.

Soils of the Tifton, Irvington, and Goldsboro series are dominant in the association. These soils have thick loamy sand surface layers, are moderately well drained and well drained, and have developed in beds of sandy and clayey marine sediments of the Hawthorn formation.

The Tifton soils are on the higher lying uplands. They have a grayish-brown surface layer and a yellowish-brown to brownish-yellow sandy clay subsoil. The Irvington soils resemble the Tifton soils and commonly adjoin them but are somewhat lower, are not so well drained, and have a weakly cemented layer at a depth of about 25 inches. The Goldsboro soils are in the same kinds of positions on the landscape as the Irvington soils and have the same drainage, but they have fewer iron concretions throughout their profile.

Minor soils of this association are the well-drained Norfolk soils on the higher lying uplands and the somewhat poorly drained Lynchburg soils next to shallow ponds and drainageways. The poorly drained Rains soils are in shallow, ponded areas, and the poorly drained Plummer soils are in drainageways and on broad flats. The Norfolk, Lynchburg, Rains, and Plummer soils were developed in beds of sands and clays.

Tifton soils make up about 30 percent of the soil association; Irvington soils, 25 percent; Goldsboro soils, 15 percent; Norfolk soils, 10 percent; the Lynchburg and Rains soils together, about 15 percent; and other minor

soils, about 5 percent. More than 80 percent of the association consists of soils in capability class II, and a great part of the acreage is cultivated or pastured. Most of the farms are small and of the general type. Tobacco and corn are the chief crops. The farms are well managed and productive and are owned by the farmers who operate them.

The soils of this association are the best in the county for farming and other uses. They are widely sought for industrial development, for road-building material, and for homesites.

2. Plummer-Rutlege-Leon soil association: Poorly drained and very poorly drained, sandy soils on Coastal Plain lowlands

This soil association is on low, level ridges, on broad flats, in depressions, and along drainageways. It is mostly in the southeastern part of the county, but a considerable acreage is in the western part, near Brentwood. The total acreage amounts to about 58 percent of the county.

The Plummer, Rutlege, and Leon soils are dominant in the association. These soils are poorly drained and very poorly drained and have developed in beds of acid marine sands and loamy sands of the Penholoway and Sunderland formations. They have a high but fluctuating water table. The surface layers are sands, though in places the surface layer of the Rutlege soils feels loamy because of the high organic-matter content.

The Rutlege soils are in drainageways and in swampy areas that are locally called bays. They have a black, sandy surface layer over dark-gray to gray sand. The Plummer soils are on broad flats and in slight depressions. They have a dark-gray surface layer over gray sand that is mottled with pale yellow. The Leon soils are on low, level ridges. Their surface layer is a mixture of very dark gray and white, which gives a salt-and-pepper appearance. At a depth of about 16 inches is a very dark brown, organic hardpan.

Minor soils of this association are the somewhat poorly drained Ona soils at a slightly higher elevation than the Leon soils, the moderately well drained and somewhat poorly drained Klej soils, the poorly drained St. Johns soils, the somewhat poorly drained Lynchburg soils, and the moderately well drained Goldsboro soils.

Plummer soils amount to about 40 percent of the association; Rutlege soils, 35 percent; Leon soils, 15 percent; Ona soils, 5 percent; and the Klej, St. Johns, Lynchburg, and Goldsboro soils together, about 5 percent. More than 85 percent of the association consists of soils in capability class V, and almost all of the acreage is wooded. The vegetation on this association is mainly of two kinds. On the Plummer and Rutlege soils, the principal vegetation is slash pine, pond pine, cypress, gum, and bay, and a very thick understory of waxmyrtle, swamp holly, titi, and other water-tolerant plants. On the Leon soils the vegetation is chiefly longleaf pine, but slash and pond pines are scattered in the low areas. Typically, there is a dense understory of dwarfed, chlorotic saw-palmetto and scattered waxmyrtle, runner oak, and stunted gallberry.

Plummer and Rutlege soils are generally excellent for slash pine, but some waterlogged areas can be improved by draining the surface water. The Leon soils are fair for pine trees. Because water stands at or on the surface of the soils in this association for long periods each year, cultivated crops are not suited. Pasture plants grow well if the soils are adequately drained.

3. Lakeland-Gilead soil association: Nearly level to steep, well-drained to excessively drained soils on Coastal Plain uplands

This soil association is on ridges that have been dissected by many small streams. Near these streams the slopes are as much as 12 percent. Slopes are steeper to the north and are commonly as much as 30 percent where the ridges join the swamps along the Altamaha River. In a few places small, circular, ponded areas break the landscape. The largest area of this soil association adjoins the Altamaha River and is northwest of Jesup. Smaller areas are along Goose Creek and Little Goose Creek. The total acreage is about 4 percent of the county.

The Lakeland and the Gilead soils are dominant in the association. These soils developed in beds of sands and clays of the Hawthorn formation. For the most part the surface soils are sands or loamy sands, but some are sandy loams.

The Lakeland soils are on the sand ridges. They are somewhat excessively drained or excessively drained and generally are sandy to a depth of 42 inches or more. The Gilead soils are on the breaks and toe slopes. They are well drained and somewhat excessively drained and have a loamy sand surface layer and a brownish-yellow or yellow, compact sandy clay subsoil.

Minor soils of this association are the moderately well drained and somewhat poorly drained Klej soils on the low ridges, the well-drained Tifton and Norfolk soils on the pebbly uplands, and the poorly drained Plummer soils between the slopes and the small streams. These minor soils were formed in beds of sands and clays of the Hawthorn formation.

Lakeland soils amount to about 45 percent of the soil association; Gilead soils, 30 percent; Klej soils, 5 percent; and the Tifton, Norfolk, and Plummer soils together, about 20 percent. More than 60 percent of the association consists of soils in capability class IV, and most of the acreage is in woods or pasture. The farms of this association commonly are small and of the general type. Tobacco, corn, and cotton are the chief crops, but because the soils are sandy and droughty, yields commonly are low.

In the northwestern part of the county, these soils are used extensively for road-building materials.

4. Lakeland-Klej-Leon soil association: Soils on broad sand ridges

This soil association is on rather broad, level or nearly level, sandy ridgetops and gentle side slopes. The landscape is broken by small, sluggish streams and by drainageways. Many small, circular ponds dot the landscape. In some places this soil association is in sloping areas and on bluffs adjoining the Altamaha River. The largest area is along the Atlantic Coast Line Railroad, between Doctortown and Screven. Smaller areas are northeast of the Southern Railroad in the eastern part of the county, and there is a small area south of Little Buffalo Swamp in the southeastern part. The total area amounts to about 11 percent of the county.

The Lakeland, Klej, and Leon soils are dominant in the association. These soils are sandy through their profile. They developed in moderately thick to thick beds of sand of the Sunderland formation. The water table is high is some places. Drainage ranges from

excessive in the Lakeland soils to poor in the Leon soils. It is moderately good to somewhat poor in the Klej soils.

The Lakeland soils are on the higher sand ridges in the association. These soils have a gray surface layer over pale-yellow sands. The Klej soils are on the lower ridges and have a dark-gray to gray, sandy surface layer over pale-yellow sands, which are mottled in the lower part. The Leon soils are on the lower ridges and flats. Their surface layer is very dark gray to gray and contains clean sand grains that give a salt-and-pepper appearance. Beneath the surface layer is white, leached sand that lies abruptly on a very dark brown, organic pan at a depth of approximately 16 inches.

Minor soils of this association are in the Plummer, Ona, St. Johns, and Blanton series. The Plummer soils are on broad flats and in shallow depressions. They are poorly drained. The Ona soils are adjacent to the Leon soils but are slightly higher and are somewhat poorly drained. The very poorly drained St. Johns soils border ponds and drainageways, and the moderately well drained Blanton soils are on the sand ridges. The soils of all four of these series developed in moderately thick to thick beds of sand and have a high water table in some places.

Lakeland soils amount to about 30 percent of the association; Klej soils, 25 percent; Leon soils, 15 percent; Plummer soils, 10 percent; the Ona, St. Johns, and Blanton soils together, about 15 percent; and other minor soils, about 5 percent. More than 55 percent of this association consists of soils in capability classes III and IV, and a great part of the acreage is wooded.

The principal vegetation is of three kinds. On the Lakeland soils the native vegetation is chiefly stands of mixed oak and scattered longleaf pine and an understory of varying amounts of wiregrass. The Klej soils are commonly in slash pine and a few mixed oaks and have a rather dense understory of gallberry and wiregrass. The principal vegetation on the Leon soils is longleaf pine, but slash and pond pines are scattered in the lower areas. The understory is mainly chlorotic saw-palmetto, but stunted gallberry, waxmyrtle, and runner oak are scattered throughout.

A few small, general farms are in this association and produce mainly corn and tobacco. Also in this association are some of the largest borrow pits in the county.

5. Weston-Bladen-Coxville-Bayboro soil association: Poorly drained and very poorly drained, fine-textured soils on lowlands

This soil association is on broad, level lowlands that are broken by many sluggish streams and by swampy areas, locally called bays. The association is only about 25 feet above sea level and is the lowest one in the county. It is in the southeastern part of the county and accounts for about 1 percent of the total area.

The Weston, Bladen, Coxville, and Bayboro soils are dominant in this association. These soils are poorly drained and very poorly drained and have developed in beds of acid marine clays of the Pamlico formation. The surface layers are mostly sandy loams, but some are loams, clay loams, and loamy sands.

The Weston soils are on low-lying flats and in sluggish drainageways. They have a black to dark-gray surface layer and a gray, mottled sandy clay to clay subsoil that has lenses of sand throughout. The Bladen and Coxville soils are on low flats and have dark-gray surface layers and gray, red, and yellowish-brown, mottled sandy clay subsoils. The Bayboro soils are in very low areas, bays, and sluggish streams and have a black loam to clay loam surface layer and a very dark gray clay subsoil.

Minor soils of this association are in the Leon and Portsmouth series. The Leon soils are somewhat higher than the Portsmouth soils, which are very poorly drained and sometimes ponded.

Weston soils amount to about 30 percent of the association; the Bladen and Coxville soils together, 25 percent; Bayboro soils, 25 percent; Leon and Portsmouth soils together, about 10 percent; and other minor soils, about 10 percent. More than 50 percent of this association is in soils of capability class V, and almost all the acreage is wooded. The native vegetation is chiefly slash and longleaf pines, sweetgum, blackgum, cypress, and a few oaks. The understory is a thick growth of gallberry, waxmyrtle, wild azaleas, yaupon, and other water-tolerant plants. The soils are excellent for slash and longleaf pines. In some waterlogged areas, draining the surface water will improve regeneration and the growth of trees.

6. Swamp-Wet alluvial land soil association: Level, poorly drained and very poorly drained, mixed soils in drainageways, small swamps, and large swampy areas

This soil association is in drainageways, small swamps, and large swampy areas that are locally called bays. It is dissected by many creeks, sloughs, and rivers. It is scattered throughout the county in many areas, the largest area being Penholloway Swamp. The association amounts to about 6 percent of the county.

The soils in this association are poorly drained and very poorly drained and are flooded periodically. They have developed in sediment that washed from higher soils. The surface layers are sand in most places but are sandy loam in some.

Wet alluvial land consists of unconsolidated alluvium that was recently deposited by streams and is subject to frequent change because of overflowing streams. The soil material is mixed and varies widely in texture.

Swamp consists of large flats or depressions that are covered with water much of the time. Those along rivers are continually receiving new sediment. The surface soil is generally stratified and varies widely in texture. Swamp also includes small islands and hummocks of varied texture, but these are covered when the water is extremely high.

Swamp amounts to about 60 percent of the association, and Wet alluvial land, about 40 percent. All of the association is in woods. The principal vegetation is blackgum, cypress, water oak, swamp chestnut oak, southern red maple, bay, and beech. The understory is a thick growth of titi, alder, waxmyrtle, and other water-tolerant plants.

The characteristics, limitations, and potentials of these soils vary widely.

Descriptions of the Soils

This section describes, in nontechnical language, the soil series (groups of soils) and single soils (mapping units) of Wayne County. The acreage and proportionate extent of each mapping unit are given in table 1.

The procedure in this section is first to describe the

soil series, and then the mapping units in that series. Thus, to get full information on any one mapping unit, it is necessary to read the description of that unit and also the description of the soil series to which it belongs. As mentioned in the section "How Soils Are Mapped and Classified," not all mapping units are members of a soil series. Swamp and Wet alluvial land are miscellaneous land types and do not belong to a soil series but, nevertheless, are listed in alphabetic order along with the soil series.

Following the name of each mapping unit, there is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of each description of a mapping unit are the capability unit and the woodland suitability group in which the mapping unit has been placed. The page on which each capability unit is described can be found readily by referring to the "Guide to Mapping Units" at the back of the report.

Soil scientists, engineers, students, and others who want detailed descriptions of soil series should turn to the section "Formation and Classification of Soils." Many terms used in the soil descriptions and other sections of the report are defined in the Glossary.

Bayboro Series

In the Bayboro series are level, very poorly drained soils in drainageways, in ponded areas, and in swampy areas that are locally called bays. These soils commonly have a black loam surface soil that is underlain by very dark gray, plastic clay at a depth of about 6 inches. The content of organic matter is high, and natural fertility is moderate. These soils are strongly acid.

The Bayboro soils occur with the Bladen, Weston, and Meggett soils but are more poorly drained than those soils and are lower on the landscape. Also, the Bayboro soils contain more organic matter and are darker gray throughout the profile.

These soils are in the extreme southeastern part of the county in an area that is about 25 feet above sea level. The native vegetation is blackgum, water oak, hickory,

TABLE 1.—*Approximate acreage and proportionate extent of soils*

Soil	Area	Extent	Soil	Area	Extent
	Acres	*Percent*		*Acres*	*Percent*
Bayboro soils	430	0.1	Lakewood coarse sand, 5 to 8 percent slopes	175	(1)
Bladen loam and clay loam	250	.1	Leon sand	31,110	7.5
Bladen-Coxville-Weston complex	400	.1	Lynchburg loamy sand, thick surface, 0 to 2 percent slopes	8,900	2.1
Blanton sand, 0 to 2 percent slopes	2,740	.7	Lynchburg loamy sand, 2 to 5 percent slopes	2,100	.5
Dunbar fine sandy loam, 0 to 2 percent slopes	165	(1)	Meggett soils	430	.1
Dunbar fine sandy loam, 2 to 5 percent slopes	110	(1)	Norfolk loamy sand, 0 to 2 percent slopes	900	.2
Eulonia loamy fine sand, 0 to 2 percent slopes	230	.1	Norfolk loamy sand, 2 to 5 percent slopes	1,415	.3
Eulonia loamy fine sand, 2 to 5 percent slopes	120	(1)	Norfolk loamy sand, thick surface, 0 to 2 percent slopes	2,430	.6
Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes	3,850	.9	Norfolk loamy sand, thick surface, 2 to 5 percent slopes	2,585	.6
Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, eroded	685	.2	Ona sand	16,300	3.9
Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes	4,815	1.2	Plummer soils	90,000	21.8
Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes, eroded	665	.2	Portsmouth loam	1,600	.4
Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes	2,000	.5	Rains loamy sand, thick surface	3,300	.8
Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes, eroded	360	.1	Rutlege sand	90,100	21.8
Gilead, Lakeland, and Sawyer soils, 12 to 17 percent slopes, eroded	380	.1	St. Johns sand	3,220	.8
Gilead, Lakeland, and Sawyer soils, 17 to 30 percent slopes, eroded	335	.1	Sunsweet soils, 5 to 12 percent slopes, eroded	210	(1)
Goldsboro loamy sand, thick surface, 0 to 2 percent slopes	8,300	2.0	Sunsweet soils, 8 to 17 percent slopes, severely eroded	305	.1
Goldsboro loamy sand, thick surface, 2 to 5 percent slopes	1,570	.4	Susquehanna loamy sand, shallow, 2 to 8 percent slopes	140	(1)
Grady loam	210	(1)	Swamp	29,000	7.0
Irvington loamy sand, thick surface, 0 to 2 percent slopes	12,500	3.0	Tifton loamy sand, 0 to 2 percent slopes	4,300	1.0
Irvington loamy sand, thick surface, 2 to 5 percent slopes	2,500	.6	Tifton loamy sand, 2 to 5 percent slopes	8,000	1.9
Klej sand, 0 to 2 percent slopes	8,440	2.0	Tifton loamy sand, 2 to 5 percent slopes, eroded	1,100	.3
Klej sand, shallow, 0 to 2 percent slopes	16,640	4.0	Tifton loamy sand, thick surface, 0 to 2 percent slopes	8,000	1.9
Lakeland sand, 0 to 5 percent slopes	13,790	3.3	Tifton loamy sand, thick surface, 2 to 5 percent slopes	4,000	1.0
Lakeland sand, 5 to 8 percent slopes	2,115	.5	Tifton loamy sand, thin solum, 2 to 5 percent slopes	340	.1
Lakeland sand, 8 to 12 percent slopes	190	(1)	Tifton loamy sand, thin solum, 2 to 5 percent slopes, eroded	2,300	.6
Lakeland coarse sand, deep, 2 to 5 percent slopes	600	.1	Tifton loamy sand, thin solum, 5 to 8 percent slopes	280	.1
Lakeland coarse sand, deep, 5 to 8 percent slopes	400	.1	Tifton loamy sand, thin solum, 5 to 8 percent slopes, eroded	1,200	.3
Lakeland sand, shallow, 0 to 2 percent slopes	1,970	.5	Wahee fine sandy loam	640	.1
Lakeland sand, shallow, 2 to 5 percent slopes	1,150	.3	Weston soils	1,150	.3
			Wet alluvial land	10,000	2.4
			Total	413,440	100.0

[1] Less than 0.1 percent.

maple, and scattered longleaf pine. Because the soils are very poorly drained and are shallow to plastic clay, their suitability for cultivation is limited. The entire acreage is in mixed forest.

Bayboro soils (0 to 2 percent slopes) (BhA).—These very poorly drained soils are in drainageways, in ponded areas, and in swampy areas that are locally called bays.

Profile description of Bayboro loam—

0 to 5 inches, black, friable loam.
5 to 26 inches, very dark gray, firm clay with moderate, medium, angular blocky structure.
26 to 54 inches +, mottled dark-gray and olive, very firm clay with strong, angular blocky structure.

The surface layer ranges from black to dark gray. It is predominantly loam but is clay loam in approximately 30 percent of the area mapped. The clay loam is generally near the center of large bays and drainageways and is commonly surrounded by larger areas of loam. In some places the individual areas with a clay loam or loam surface layer are only a few feet wide, but the native vegetation does not differ significantly on either soil.

Bayboro soils have moderate natural fertility and are strongly acid. They have a high content of organic matter in the surface layer and high available water capacity. Surface runoff is slow, and water is often ponded. The soils have a thick root zone, are slowly permeable, and are generally in fair tilth. These slowly permeable soils are very sticky when wet, and they harden and crack when they dry. Removing excess surface water encourages slash pine to reproduce and to grow well. All the acreage of these soils is in mixed forest. (Capability unit Vw–1; woodland suitability group 4)

Bladen Series

In the Bladen series are poorly drained soils on broad flats and in slightly ponded areas. The surface layer is mottled gray to black loam or clay loam over very firm clay. The soils have formed in thick beds of clay and sandy clay on low marine terraces. Slopes range from 0 to 2 percent. These soils are low in natural fertility, low to medium in organic matter, and strongly acid.

The Bladen soils commonly adjoin the Coxville, Dunbar, Weston, and Bayboro soils. They resemble Coxville and Dunbar soils but are less well drained and have only a few red mottles in the subsoil. Bladen soils are in positions similar to those occupied by the Weston soils, but they contain more clay. They are better drained than the Bayboro soils, and their surface layer contains less organic matter than that of the Bayboro soils.

The native vegetation on the Bladen soils is chiefly slash pine, longleaf pine, sweetgum, and blackgum, but there are a few white, post, and water oaks. The undergrowth is largely waxmyrtle, wiregrass, and sawgrass. Nearly all of the acreage is in trees, but in most areas the stand is sparse.

In some places in this county, Bladen loam and Bladen clay loam are mapped together as a single unit. In other places, where the Bladen soils are intricately mixed with the Coxville and Weston soils, the soils of the three series are mapped together as a complex.

Bladen loam and clay loam (0 to 2 percent slopes) (BjA).—These poorly drained soils are on broad, low flats and in slight depressions in the eastern part of the county, near Mount Pleasant.

Profile description of Bladen clay loam—

0 to 9 inches, mottled gray and olive-brown, firm clay loam.
9 to 27 inches, mottled gray, brownish-yellow, and strong-brown, firm to very firm clay with moderate, blocky structure.
27 to 48 inches +, mottled gray, yellowish-brown, strong-brown, and yellowish-red, very firm, plastic clay.

The surface layer ranges from gray to black in color and from clay loam to loam in texture. In some areas a thin layer of very fine sandy loam overlies the clay loam. The surface layer is likely to crack when it dries, especially in areas where the texture is clay loam.

Bladen loam and clay loam are generally strongly acid, low in natural fertility, and low to medium in content of organic matter. Surface runoff is very slow. Water is ponded in many areas, and it stands in the shallow depressions much of the time. Permeability is very slow. Tilth is poor, especially in areas of Bladen clay loam. The soils should be worked only when they are slightly moist. They have a favorable root zone.

All the acreage of these soils is in trees. Poor tilth and poor drainage make the soils unsuited to cultivated crops, and some areas are not readily accessible. (Capability unit Vw–1; woodland suitability group 4)

Bladen-Coxville-Weston complex (0 to 2 percent slopes) (BkA).—In places in this county, the Bladen, Coxville, and Weston soils are intricately mixed, and the areas of each soil are only a few feet wide and are too small to be mapped separately. Consequently, the soils of the three series are mapped together as a single unit. The Bladen soils have slightly poorer drainage than the Coxville and Weston soils. The Weston soils are sandier throughout the solum than the Bladen and Coxville soils. The profiles of all three soils, however, are similar in some respects. The subsoil of the Bladen and Weston soils is mottled with shades of gray and brownish yellow, and that of the Coxville soils, with shades of red. Bladen soils make up about 40 percent of the mapping unit, and Weston and Coxville soils, about 30 percent each.

Profile description of Bladen sandy loam—

0 to 6 inches, very dark gray, friable sandy loam.
6 to 12 inches, gray, friable sandy loam.
12 to 36 inches, mottled gray, brownish-yellow, and dark-gray, firm clay with subangular blocky structure.
36 to 54 inches +, mottled gray, brownish-yellow, and dark-gray, plastic, dense clay.

Profile description of Coxville loamy sand—

0 to 7 inches, dark-gray to pale-yellow, very friable loamy sand.
7 to 28 inches, mottled olive-gray, red, and yellow, very firm clay with coarse, blocky structure.
28 to 54 inches +, mottled gray, brownish-yellow, and red, very firm sandy clay.

Profile description of Weston loamy sand—

0 to 4 inches, black, friable loamy sand.
4 to 15 inches, gray loamy sand mottled with pale olive.
15 to 54 inches +, mottled gray and strong-brown, firm clay with moderate, medium, subangular blocky structure; lenses of gray sand are prominent.

The soils of the Bladen-Coxville-Weston complex are very strongly acid, are low in natural fertility, and contain little organic matter. The surface soil is generally in good tilth. Although the clayey subsoil is slowly permeable and sticky when wet, the root zone is favorable if the soils are properly drained. The available water capacity is high. Water stands in low areas during rainy periods. Drainage is required, but the soils are fairly well suited to cultivation if they are well managed. They

are well suited to pine, and all their acreage is in trees. (Capability unit IIIw–2; woodland suitability group 2)

Blanton Series

In the Blanton series are moderately well drained, sandy soils that have a high but fluctuating water table. During prolonged dry periods these soils tend to be droughty. They commonly have a dark-gray to gray, sandy surface layer that is underlain by gray to white, structureless sand. Slopes range from 0 to 2 percent. These soils are low in natural fertility, contain little organic matter, and are very strongly acid.

The Blanton soils occur with the Klej, Lakeland, Ona, and Plummer soils. Blanton soils are slightly better drained than Klej soils, which are underlain by acid marine sands. They are in lower positions than Lakeland soils and have a gray and white profile instead of a dark-gray and yellowish-brown one. The Blanton soils are somewhat better drained than Ona soils and lack the layer stained with organic matter that is common in those soils. Blanton soils occupy a higher position and are better drained than Plummer soils.

Most of the Blanton soils lie within 5 miles of Jesup, but small areas are scattered throughout most of the county. The total acreage is small. The native vegetation is longleaf and slash pines, scrub oak, wiregrass, myrtle, gallberry, and scattered saw-palmetto. Although most of the acreage is wooded, a few small areas are in pasture and some are cultivated. Because these soils are sandy, their suitability for cultivation is limited.

Blanton sand, 0 to 2 percent slopes (BnA).—This is a moderately well drained, deep, sandy soil on low, level ridges. A brief profile description follows.

0 to 9 inches, gray, loose sand.
9 to 48 inches +, light-gray, loose sand with faint mottles of yellow.

Most areas of this soil are sand, but some small areas of fine sand occur near Jesup. The surface layer ranges from light gray to dark gray and is underlain by gray to white sand.

This soil is very strongly acid, is low in natural fertility, and contains very little organic matter. The available water capacity is low. Tilth is generally good, and the root zone is thick. Water enters and moves through the soil rapidly, and little or none runs off. The soil responds to good management but is suited to only a few crops because it is so sandy.

This soil is used mostly for timber production. Only a small part is cultivated. (Capability unit IIIs–3; woodland suitability group 8)

Coxville Series

The Coxville series consists of poorly drained soils on broad flats. These soils have formed in low, marine sediments that are dominantly fine textured. Slopes range from 0 to 2 percent. The surface layer is loamy sand, 5 to 12 inches thick. The fine-textured part of the subsoil is reticulately mottled olive-gray to gray sandy clay or clay. These soils are low in natural fertility, low in organic matter, and very strongly acid.

The Coxville soils occur with the Dunbar, Weston, Bayboro, and Bladen soils. They are more poorly drained than the Dunbar soils, and their subsoil is much finer textured than that in the Weston soils. The Coxville soils are slightly higher than the Bayboro soils, are a little better drained, and contain less organic matter in the surface layer. Although they are similar to the Bladen soils, Coxville soils are slightly higher and are less subject to ponding.

The native vegetation is chiefly sweetgum, oak, longleaf pine, red maple, and an understory of waxmyrtle, gallberry, and wiregrass. Poor drainage limits suitability for cultivation, and the entire acreage is in mixed forest.

The Coxville soils are not mapped separately in this county; they are mapped as a complex with the Bladen and Weston soils. A profile of the Coxville soil is described as part of the description of the Bladen-Coxville-Weston complex.

Dunbar Series

The soils of the Dunbar series are on the Coastal Plain lowland and are somewhat poorly drained. Slopes range from 0 to 5 percent. These soils have a very dark gray fine sandy loam surface soil. Their subsoil ranges from yellow to yellowish brown and is mixed with gray and red in the lower part. The clayey part of the subsoil ranges from sandy clay to clay. These soils are low to moderate in natural fertility, contain little organic matter, and are very strongly acid.

The Dunbar soils occur with the Eulonia and Weston soils. They are less well drained than the Eulonia soils and lack their profile development. Dunbar soils are better drained than the Weston soils, but they lack the sand lenses that occur in the lower horizons of the Weston soils.

The Dunbar soils in this county are in the southeastern part, on low knolls and level or nearly level ridges. The total acreage is small. The native vegetation is chiefly longleaf pine, sweetgum, mixed oaks, and an understory of gallberry, waxmyrtle, and wiregrass. Most of the acreage is wooded. A few small areas are cultivated or are in pasture. Dunbar soils are well suited to cultivation, but they are in small, remote areas and, in many places, are surrounded by lower lying soils.

Dunbar fine sandy loam, 0 to 2 percent slopes (DmA).—This is a somewhat poorly drained soil of the lower Coastal Plain. A brief profile description follows.

0 to 6 inches, very dark gray, very friable fine sandy loam.
6 to 15 inches, pale-yellow, very friable fine sandy loam mottled with reddish yellow.
15 to 30 inches, mottled gray, yellowish-brown, and red, firm sandy clay with moderate, medium, subangular blocky structure.
30 to 48 inches +, mottled gray, strong-brown, and red, very firm clay with moderate, blocky structure.

Cultivated areas of this soil have a light grayish-brown surface layer. The sandier upper part of the solum ranges from 12 to 18 inches in thickness. The 15- to 30-inch layer ranges from sandy clay loam to heavy sandy clay. It is yellow to yellowish brown with gray and red intermingled in the lower part.

This soil is very strongly acid, is low to moderate in natural fertility, and contains little organic matter. The surface soil is generally in good tilth, and the root zone is favorable. Water enters and moves through the soil at a moderate rate. During wet periods, however, the water table is high. With good management, this soil is suited to cultivation, though some drainage is needed.

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It is well suited to pasture and to pine trees. (Capability unit IIw-2; woodland suitability group 2)

Dunbar fine sandy loam, 2 to 5 percent slopes (DmB).—Although it is on stronger slopes, this soil is similar to Dunbar fine sandy loam, 0 to 2 percent slopes. Because the slopes are short and near drainageways, drainage is better on this gently sloping soil and a high water table during wet periods is less likely. In cultivated areas erosion is a slight hazard.

This soil is moderate in available water capacity, low to moderate in natural fertility, and low in organic matter. Water enters and moves through the soil at a moderate rate. The root zone is favorable. This is a productive soil that is suitable for many uses. Most of the acreage is wooded, however, and is well suited to this use. (Capability unit IIe–3; woodland suitability group 2)

Eulonia Series

In the Eulonia series are moderately well drained soils on slopes of 0 to 5 percent. These soils have a dark-gray to dark grayish-brown loamy fine sand surface layer. Their subsoil is yellow to yellowish brown and ranges from sandy clay loam to sandy clay. Mottled red and gray sandy clay is at a depth of about 25 inches. These soils are low to moderate in natural fertility, contain little organic matter, and are very strongly acid.

The Eulonia soils occur with the Dunbar and Klej soils. They are better drained than Dunbar soils and have more distinct horizons and are finer textured throughout than the Klej soils.

In this county Eulonia soils are in the southeastern part. Their total acreage is small. The native vegetation consists mostly of mixed stands of pine, oak, and sweetgum with an understory of waxmyrtle, gallberry, and wiregrass. Most of the acreage is woodland, a large part of which is in small, remote areas, and is owned by large companies.

Eulonia loamy fine sand, 0 to 2 percent slopes (EtA).—This moderately well drained soil is on knolls on the lower Coastal Plain. A brief profile description follows.

0 to 6 inches, dark grayish-brown, very friable loamy fine sand.
6 to 18 inches, yellow, friable fine sandy loam.
18 to 48 inches +, mottled yellow, red, and pale-yellow, friable sandy clay with subangular blocky structure. Mottles below a depth of 23 inches are light gray, red, and brownish yellow.

The sandier upper part ranges from 6 to 18 inches in thickness. Areas under cultivation normally have a gray plow layer. The 18- to 48-inch layer ranges from yellow to light gray and is mottled with pale yellow, brownish yellow, and red. The texture ranges from light sandy clay loam in the upper part to clay in the lower. The mottled sandy clay or clay occurs at a depth of about 23 inches. In places there are a few pebbles (iron concretions) on and in the soil.

This soil is very strongly acid, is low to moderate in natural fertility, and contains little organic matter. Surface runoff is slow, and permeability is moderately slow. The available water capacity is moderately high. Tilth generally is good, and the root zone is favorable.

This soil is well suited to cultivated crops and to pine trees. Most of the acreage is in pine because the soil is in small areas that are surrounded by low-lying, poorly drained soils that are suitable for cultivation only if they are drained. (Capability unit IIw–3; woodland suitability group 3)

Eulonia loamy fine sand, 2 to 5 percent slopes (EtB).—This soil is in the southeastern part of the county, on small knolls and short slopes near drainageways. The surface soil is predominantly dark grayish-brown loamy fine sand and is underlain by mottled yellow, red, and pale-yellow, friable sandy clay.

This soil is very strongly acid. The available water capacity is moderate, permeability is moderately slow, and runoff is slow. This soil is low to moderate in natural fertility and contains little organic matter. Tilth generally is good, and the root zone is favorable.

Most of this soil is in woods. A small acreage is in corn, vegetables, and improved pasture. If the soil on long slopes is cultivated, erosion is a slight hazard. (Capability unit IIe–3; woodland suitability group 3)

Gilead Series

The Gilead series consists of well-drained and somewhat excessively drained soils on slopes of 2 to 30 percent. Uneroded areas typically have a very dark grayish-brown loamy sand surface layer and a firm, brownish-yellow or yellow sandy clay loam to sandy clay subsoil. Quartz grains are common on the surface and throughout the profile. Also on the surface in many places are small, rounded concretions of iron. These soils are moderately low in natural fertility, contain little organic matter, and are very strongly acid.

The Gilead soils occur with the Lakeland, Sawyer, Norfolk, and Tifton soils. They are generally bordered on the lower side by Plummer, Rains, and other more poorly drained soils. Gilead soils have a finer textured subsoil than Lakeland and Norfolk soils and are not so well drained. They are not so fine textured in the subsoil as Sawyer soils. They lack the numerous iron concretions common in the Tifton soils.

Most of the Gilead soils in this county are in the northwestern part, but a considerable acreage is scattered throughout the county. The native vegetation is chiefly longleaf pine, sweetgum, and some scrub oak, and the understory is waxmyrtle and wiregrass. These soils are fairly well suited to most of the common crops grown in the county, but most of the acreage is wooded.

All the Gilead soils in this county are mapped in undifferentiated units with the Lakeland and Sawyer soils.

Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes (GCB).—These soils are in the northwestern part of the county, on side slopes and at the end of low ridges. They are so intermingled that it is not practical to map them separately.

Drainage is good and somewhat excessive in the Gilead soils, is excessive in Lakeland soils, and is moderately good in Sawyer soils. Some areas have small seep spots. The surface layer of the Gilead soils is similar to that of the Sawyer soils, but the subsoil is somewhat coarser textured and more compact and is underlain by coarser textured material. The Lakeland soils are sandy throughout.

The Gilead soils amount to about 45 percent of the acreage; Lakeland soils, 25 percent; Sawyer soils, 20 percent; and minor included soils, 10 percent.

Profile description of a Gilead soil—

0 to 3 inches, very dark grayish-brown, loose loamy sand.
3 to 15 inches, light yellowish-brown, loose loamy sand.
15 to 37 inches, dark yellowish-brown, firm sandy clay that is mottled with gray and red below a depth of 23 inches.
37 to 60 inches +, mottled red, light-gray, and brownish-yellow sandy clay with moderate, medium, subangular blocky structure.

Cultivated areas of Gilead soils commonly have a grayish-brown plow layer. The surface layer is loamy sand in most places but ranges from loamy sand to sand. A few irregularly shaped concretions of iron are scattered on the surface and in the sandy part of the profile. The sandy surface layer ranges from about 9 to 26 inches in thickness. The subsoil ranges from yellowish brown to dark yellowish brown in color.

Profile description of a Lakeland soil—

0 to 3 inches, dark-gray, loose sand.
3 to 54 inches +, brownish-yellow, loose sand.

Areas under cultivation have a gray plow layer. Fine-textured material occurs at a depth ranging from about 42 inches to several feet. The average depth to the seasonally high water table is 4 feet. In some areas the sand is yellow at a depth below 3 inches.

Profile description of a Sawyer soil—

0 to 4 inches, dark grayish-brown, very friable loamy sand.
4 to 10 inches, light olive-brown, very friable loamy sand.
10 to 28 inches, firm to very firm sandy clay reticulately mottled with yellowish brown and light yellowish brown; pockets of clay; moderate, subangular blocky structure.
28 to 40 inches +, clay reticulately mottled with yellowish brown, light yellowish brown, and pale olive; moderate, medium, blocky structure.

In most places the surface layer is dark grayish brown, but in some places it is dark gray. It ranges from loamy sand to sand. The upper 3 to 8 inches of the subsoil generally is free of mottles and, in places, is sandy clay loam. The lower subsoil is predominantly sandy clay or clay.

Included with the Sawyer soil are areas that have a discontinuous layer of yellowish-red, mottled clay under the thin sandy surface layer.

The surface layer of Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, ranges from sandy loam to sand. The soils are strongly acid and very strongly acid, are low in natural fertility, and contain little organic matter. Tilth is generally good.

The Gilead and Sawyer soils have moderate permeability. The depth of the root zone is moderate to moderately thin, and the available water capacity is moderately low. These soils are fairly well suited to most of the crops grown in the county but are susceptible to erosion. The Lakeland soil has a deep root zone, is rapidly permeable, and has a low available water capacity. Tilth is good when the moisture content is favorable. Although the Lakeland soil is droughty, it is fairly well suited to the crops commonly grown in the county. (Capability unit IIe–4; woodland suitability group 3)

Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, eroded (GCB2).—The slopes of these soils are shorter than those of Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, and the surface layer is 1 to 3 inches thinner.

All the acreage has been cultivated. The soils can be used for the same crops as Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, but they require more intensive management. Their productivity is limited by past erosion, by a thin root zone, and by a moderately low available water capacity. (Capability unit IIIe–4; woodland suitability group 3)

Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes (GCC).—These soils are on short slopes adjacent to streams. They are spotted with small areas of excessively drained sand that is several feet thick. They have stronger slopes than Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, and generally are 1 to 3 inches thinner in the surface layer. The slopes are strong enough to cause a moderate to severe erosion hazard in cultivated fields.

These soils are limited in productivity and in their suitability for crops by their erosion hazard, their thin root zone, and their moderately low available water capacity. (Capability unit IIIe–4; woodland suitability group 3)

Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes, eroded (GCC2).—The surface layer of these soils ranges from sandy loam to sand. It is generally 4 to 8 inches thick and is somewhat finer textured than that of Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes. The soils are spotted with small areas of excessively drained sand that is several feet thick. Some areas are severely eroded, and exposed in these areas is mottled yellow and yellowish-red material that was formerly subsoil. Although these soils have been cultivated, much of their acreage has reverted to permanent pasture or to pine.

Runoff is rapid, and the erosion hazard is severe. These soils are poorly suited to cultivation, but they can be cultivated occasionally if they are intensively managed. (Capability unit IVe–4; woodland suitability group 3)

Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes (GCD).—The surface layer of these soils is mainly loamy sand, 8 to 12 inches thick, but it ranges from sandy loam to sand. The subsoil is sandy clay to clay and is commonly mottled below 14 inches. These soils are spotted with many small areas of excessively drained sand that is several feet thick. A few eroded areas are included, and in these, mottled material that formerly was subsoil is exposed.

Because they are sloping and their subsoil is variable, these soils are difficult to cultivate. Most of their acreage is in pine. (Capability unit VIe–2; woodland suitability group 3)

Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes, eroded (GCD2).—In much of the acreage the surface layer of these soils is sandy loam, 4 to 6 inches thick, but the texture ranges from sandy loam to sand. The subsoil is sandy clay or clay and is commonly mottled at about 10 inches from the surface. Gullies and severely eroded areas are common, and in these areas the clayey subsoil is exposed. The soils are spotted with small areas of excessively drained sand that is several feet thick.

Because of the strong slopes, the severe erosion hazard, and the variable characteristics, these soils are not suited to cultivation. Most of their acreage is in pine. (Capability unit VIe–2; woodland suitability group 3)

Gilead, Lakeland, and Sawyer soils, 12 to 17 percent slopes, eroded (GCE2).—These soils are in the northwestern part of the county on sharp breaks along Goose

Creek and the Altamaha River. The total acreage is small. The surface layer is generally sandy loam, 4 to 6 inches thick, but it ranges from sandy loam to sand. The subsoil is sandy clay to clay and is mottled at about 10 inches from the surface. These soils are spotted with small areas of excessively drained sand that is several feet thick. The subsoil is exposed in a few shallow gullies and in an occasional deep one.

These soils are not suited to cultivation and are only fair for pasture. They are mainly in mixed stands of pines and hardwoods. (Capability unit VIIe–2; woodland suitability group 3)

Gilead, Lakeland, and Sawyer soils, 17 to 30 percent slopes, eroded (GCF2).—These soils occur only on the bluffs that border the Altamaha River. Their acreage is small. The surface layer is generally sandy loam, 4 to 6 inches thick, but it ranges from sandy loam to sand. The subsoil is sandy clay to clay mottled at about 10 inches from the surface. Spotting these soils are small areas of excessively drained sand that extends to a depth of several feet. A few shallow gullies and an occasional deep one are present, and in these the subsoil is exposed.

Because of the steep slopes and a very severe erosion hazard, these soils are not suited to cultivation. Their vegetation is mainly mixed stands of pines and hardwoods. (Capability unit VIIe–2; woodland suitability group 3)

Goldsboro Series

In the Goldsboro series are moderately well drained soils that have developed in thick beds of sandy loam and sandy clay loam. Slopes range from 0 to 5 percent. The surface soil is loamy sand. It ranges from very dark gray to very dark grayish brown in undisturbed areas and is dark grayish brown in recently cultivated areas. The subsoil is sandy clay loam and ranges from brownish yellow to yellowish brown. In places a few small, rounded concretions of iron are on and in the soil. These soils are low in natural fertility, contain little organic matter, and are very strongly acid.

The Goldsboro soils occur with the Irvington, Norfolk, and Lynchburg soils. They lack the many iron concretions and the hardpan of the Irvington soils. Although they closely resemble the Norfolk soils, the Goldsboro soils are less well drained. They have a browner subsoil than the Lynchburg soils and are better drained.

Goldsboro soils are scattered throughout the county but are mainly in the western half. Their native vegetation is chiefly longleaf and slash pines, and scattered oak, gallberry, waxmyrtle, and wiregrass. Most of the acreage is cultivated, mainly to corn, tobacco, cotton, and peanuts. These soils are among the best in the county for cultivation. During wet periods, however, drainage is required to prevent loss of crops.

Goldsboro loamy sand, thick surface, 0 to 2 percent slopes (GnA).—This is a moderately well drained soil on level uplands. A brief profile description follows.

0 to 8 inches, dark grayish-brown, very friable loamy sand.
8 to 20 inches, pale-yellow to brownish-yellow, very friable loamy sand.
20 to 36 inches, brownish-yellow, friable sandy clay loam that is mottled with strong brown below a depth of 24 inches; moderate, medium, subangular blocky structure.
36 to 48 inches +, mottled light-gray, yellowish-brown, and red, friable sandy clay with moderate, medium, subangular blocky structure.

The combined thickness of the first two layers ranges from about 17 to 30 inches. The subsoil ranges from yellowish-brown to pale-yellow sandy clay loam. A few small areas of fine sand are included with this soil in an area south of McKinnon. Mottling occurs at a depth of 24 to 28 inches.

This soil is very strongly acid and is high in available water capacity. Infiltration and permeability are moderate. The water table fluctuates and is highest early in spring and lowest in fall. Natural fertility and the content of organic matter are low. Tilth is generally good, and the root zone is favorable. Little runoff occurs.

A large acreage of this soil is in cultivated crops, mainly tobacco, corn, peanuts, and permanent pasture. This soil responds well to management, but some drainage is needed during wet periods. (Capability unit IIw–2; woodland suitability group 2)

Goldsboro loamy sand, thick surface, 2 to 5 percent slopes (GnB).—The loamy sand surface layer of this soil is 18 to 30 inches thick. Surface drainage is better than on Goldsboro loamy sand, thick surface, 0 to 2 percent slopes. The total acreage, however, is much less.

Under intensive cultivation this soil is subject to erosion. Surface runoff is medium. Most crops grown in the county are suited. (Capability unit IIe–3; woodland suitability group 2)

Grady Series

In the Grady series are poorly drained soils in small, round, ponded areas. These soils formed in beds of sandy clay and clay. They have a black loam surface soil and a predominantly gray subsoil. The texture of the subsoil ranges from sandy clay loam to clay. These soils are low in natural fertility, moderately high in organic matter, and extremely acid to very strongly acid.

The Grady soils occur with the Tifton, Norfolk, Goldsboro, Irvington, and Lynchburg soils. They are more poorly drained than those soils and lack their yellow or yellowish-brown subsoil. They occupy positions similar to those of the Rains soils but have a finer textured subsoil.

The Grady soils in this county are mostly in the southwestern part, but small areas are scattered throughout. When well managed they are well suited to pine trees. They have a high water table and are generally too wet for cultivation unless they are drained. The native vegetation is slash pine, blackgum, cypress, and an understory of swamp holly and water-tolerant grasses. Most of the acreage is in trees.

Grady loam (0 to 2 percent slopes) (Gad).—This is a poorly drained soil in small, circular, ponded areas. A brief profile description follows.

0 to 5 inches, black, friable loam.
5 to 13 inches, dark-gray to gray, friable sandy loam to sandy clay loam with weak, subangular blocky structure.
13 to 44 inches +, gray, firm to very firm clay with blocky structure.

The surface layer ranges from 4 to 8 inches in thickness. It is predominantly black, though in a few small areas it is very dark gray. The subsoil ranges from sandy clay loam to clay and is predominantly gray with few, fine, faint mottles below a depth of 23 inches. Included with this soil, on the outer rim of some depressions, are small areas of Rains loamy sand, thick surface.

Grady loam is very strongly acid or extremely acid, is low in natural fertility, and has a moderately high content of organic matter in the surface layer. Tilth is generally good. The soil has a favorable root zone and high available water capacity. Infiltration and permeability are moderately slow, and the water table is high. Most of this soil is in mixed forest, though a few small areas have been drained and are cultivated. In most areas removal of the surface water is necessary if pine trees are to reproduce satisfactorily. Adequately drained areas are suited to pasture plants and other crops. (Capability unit IIIw–2; woodland suitability group 4)

Irvington Series

In the Irvington series are moderately well drained soils that have developed in beds of sandy loam and sandy clay loam. Slopes range from 0 to 5 percent. The surface layer of these soils is loamy sand that is gray to very dark grayish brown in the upper part and pale brown to yellowish brown in the lower. A hardpan layer, or fragipan, of predominantly yellowish-brown sandy clay loam has formed locally at a depth of about 25 inches. This layer consists of iron crusts or of stratified and compact sand that is cemented with iron. Rounded concretions of iron that average about 1½ inches in diameter are on and in these soils. The soils are low in natural fertility, contain little organic matter, and are very strongly acid.

Irvington soils occur with the Tifton, Goldsboro, and Lynchburg soils but differ from them by having a well-defined hardpan. Irvington soils closely resemble the Tifton soils but are not so well drained. They are better drained than the Lynchburg soils and contain more iron concretions throughout the profile than the Goldsboro and the Lynchburg soils.

Irvington soils are scattered throughout this county, but they are mainly in the western half. Their native vegetation is chiefly longleaf pine, a thick mat of wiregrass, and scattered oak, waxmyrtle, and gallberry. These soils are well suited to cultivated crops, pasture, and pine trees. Most of their acreage is cultivated.

Irvington loamy sand, thick surface, 0 to 2 percent slopes (IhA).—This is a moderately well drained soil on level or nearly level uplands. A brief profile description follows.

0 to 5 inches, dark grayish-brown, very friable loamy sand with many iron concretions.
5 to 25 inches, pale-brown to yellowish-brown loamy sand with a few iron concretions.
25 to 31 inches, mottled yellowish-brown, brownish-yellow, and strong-brown, friable sandy clay loam with weak, subangular blocky structure; many weakly cemented concretions of iron.
31 to 46 inches +, mottled yellowish-brown, pale-brown, and yellowish-red, friable sandy clay loam with weak, subangular blocky structure.

The surface layer of this soil is very dark grayish brown in wooded areas and is generally gray or grayish brown in cultivated areas. The loamy sand extends to a depth that ranges from 18 to 30 inches but is about 25 inches in most places. The subsoil generally is yellowish-brown sandy clay loam. The depth to mottling ranges from 22 to 28 inches.

This soil is very strongly acid, is low in natural fertility, and contains little organic matter. It is high in available water capacity and is moderate in infiltration and permeability. A fluctuating water table is highest in spring and lowest in fall. This soil has a favorable root zone and is generally in good tilth. Most of the acreage is cultivated. The principal crops are tobacco, corn, peanuts, and permanent pasture. Some drainage is needed to prevent loss of crops in wet periods. Response to management is good. (Capability unit IIw–2; woodland suitability group 2)

Irvington loamy sand, thick surface, 2 to 5 percent slopes (IhB).—The loamy sand surface layer of this soil is 18 to 30 inches thick and is underlain by mottled yellowish-brown, brownish-yellow, and strong-brown sandy clay loam. Surface drainage is better than that in Irvington loamy sand, thick surface, 0 to 2 percent slopes. The total acreage is small.

This soil is subject to erosion if it is cultivated intensively. Most crops grown in this county are suited. (Capability unit IIe–3; woodland suitability group 2)

Klej Series

The Klej series is made up of moderately well drained and somewhat poorly drained soils that formed in thick beds of acid marine sand. Slopes range from 0 to 2 percent. The surface layer of gray to dark grayish-brown sand is underlain by mottled pale-yellow, yellowish-brown, and gray sand. The sand, in turn, is underlain by finer textured material, generally at a depth of 32 inches or more. These soils are low in natural fertility, contain little organic matter, and are strongly acid to very strongly acid.

The Klej soils generally are near the Plummer, Lakeland, Blanton, and Ona soils. Klej soils are slightly higher and are better drained than the Plummer soils. They are more poorly drained than the Lakeland soils. They have more color throughout the profile than Blanton soils but lack the layer stained by organic matter that is in the Ona soils.

The Klej soils are widely distributed throughout the county. Their native vegetation is mainly slash and longleaf pines with an understory of gallberry, waxmyrtle, and a few scattered saw-palmettos. Wiregrass covers the surface. These soils are suited to most crops commonly grown in the county, but most of their acreage is wooded. Because the water table is high, drainage is needed if these soils are cultivated.

Klej sand, shallow, 0 to 2 percent slopes (KlA).—This is a moderately well drained and somewhat poorly drained soil on low, level ridges. A brief profile description follows.

0 to 10 inches, dark grayish-brown, loose sand.
10 to 32 inches, mottled pale-yellow, yellowish-brown, and gray, loose sand.
32 to 54 inches +, mottled light yellowish-brown, red, light-gray, and yellowish-brown, friable sandy clay loam with subangular blocky structure.

Cultivated areas of this soil have a gray plow layer. This layer is predominantly sand, but small areas of fine sand are included. Below 10 inches is pale-yellow to yellowish-brown sand that is mottled with gray or white. In most places mottled sandy loam or sandy clay loam begins at a depth ranging from 30 to 42 inches. At this depth a few soft concretions of iron occur in most places.

This soil is very strongly acid and is low in natural fertility and in organic matter. Runoff is slow, and infiltration and permeability are rapid. The soil is generally in good tilth and has a favorable root zone.

Because the water table fluctuates, however, the soil is wet during rainy periods and is slightly droughty during extended dry periods. Some drainage is needed during wet periods to prevent damage to crops. The soil is mostly in pine trees and is well suited to that use, but a sizable acreage is cultivated. The principal crops are tobacco, corn, and permanent pasture. (Capability unit IIIw–1; woodland suitability group 8)

Klej sand, 0 to 2 percent slopes (KhA).—This soil contains less of the fine-textured material than Klej sand, shallow, 0 to 2 percent slopes. The sand extends to a depth of generally more than 42 inches and is underlain by mottled sandy loam or sandy clay loam. In higher areas this soil is similar to the Lakeland soils, but in less well-drained areas it is similar to the Ona soils. Included in mapped areas are a few small areas of fine sand.

This soil is low in natural fertility and in organic matter. Surface runoff is very slow, and permeability is rapid. The soil has a thick root zone and is generally in good tilth. It is easily cultivated but is somewhat wet late in winter and in spring because the water table is high. The water table falls sharply late in spring, and the soil is droughty in summer. This soil is mostly in pine trees and is well suited to that use, but some areas are cultivated or are in permanent pasture. The principal crops are tobacco and corn. For best results cultivated areas need to be drained. (Capability unit IIIw–1; woodland suitability group 8)

Lakeland Series

The Lakeland series consists of somewhat excessively drained or excessively drained sands on slopes of 0 to 12 percent. These soils have formed in thick or moderately thick beds of sand that, in many places, overlie finer textured sediments. The surface layer of Lakeland soils is commonly thin, dark-gray sand that is underlain by yellow to brownish-yellow sand. The depth to finer textured material ranges from about 30 inches to several feet. These soils are strongly acid and are low to very low in content of organic matter and in natural fertility.

The Lakeland soils occur with the Norfolk, Tifton, Klej, and Gilead soils. Lakeland soils are similar to the Norfolk soils in color but are sandier and are excessively drained instead of well drained. They are also sandier than the Tifton soils and lack the pebbles that are common in those soils. Lakeland soils are higher and are better drained than the Klej soils. They adjoin, and are sometimes intermingled with, the Gilead soils on slopes and breaks near drainageways. They are better drained than the Gilead soils and are not so fine textured.

Lakeland soils are scattered throughout this county, but their largest acreage is north of Jesup. The native vegetation is chiefly turkey and bluejack oaks and scattered longleaf pine. The understory consists of scattered shrubs and of wiregrass. Most of the acreage is in woods, but some is in crops and pasture. Especially where Lakeland soils formed in areas of deep sand, they are droughty and, consequently, are of limited suitability for cultivation.

Lakeland sand, 0 to 5 percent slopes (LpB).—This is an excessively drained soil on level ridges. A brief profile description follows.

0 to 3 inches, dark-gray, loose sand.
3 to 54 inches +, brownish-yellow, loose sand; single-grain structure; light-gray mottles below 36 inches.

Cultivated areas have a gray plow layer. The sand ranges from 42 inches to several feet in thickness and is underlain by finer textured material. The average depth to the seasonally high water table is about 4 feet, but in some places it is deeper and in a few places is within 3 feet of the surface. The 3- to 54-inch layer is commonly brownish yellow, but where this soil grades toward the Blanton soils, small areas are somewhat lighter in color.

This soil is strongly acid, is low to very low in natural fertility, and contains very little organic matter. Runoff is slow because infiltration and permeability are rapid. The available water capacity is low. Tilth is good when the moisture content is favorable. This soil has a deep root zone. It is droughty and is, therefore, not suited to many kinds of crops. Pine trees grow well. (Capability unit IVs–1; woodland suitability group 6)

Lakeland sand, 5 to 8 percent slopes (LpC).—The stronger slopes of this soil distinguish it from Lakeland sand, 0 to 5 percent slopes. The two soils, however, are similar in color and texture. This more sloping soil is near streams and drainageways. It is droughty and, if cleared, is susceptible to erosion.

If this soil is intensively managed, it is fair for permanent pasture and can be cultivated occasionally. Hazards are many, however, and yields are generally low. Pine trees grow well. (Capability unit IVs–1; woodland suitability group 6)

Lakeland sand, 8 to 12 percent slopes (LpD).—This soil is more strongly sloping than Lakeland sand, 0 to 5 percent slopes, but it is similar to that soil in color and texture. It is on short slopes near streams and drainageways. The soil is droughty and is not suited to cultivated crops. A few areas are in permanent pasture, which grows fairly well, but most of the acreage is in woods. (Capability unit VIs–2; woodland suitability group 6)

Lakeland coarse sand, deep, 2 to 5 percent slopes (LwB).—The surface layer of this soil is dark-gray coarse sand about 3 inches thick. Beneath this layer is 6 feet or more of yellow to yellowish-brown coarse sand.

This soil is strongly acid, is very low in natural fertility, and contains little organic matter. Because the soil consists of loose coarse sand, it is very rapidly permeable and, therefore, extremely droughty. Most of the acreage is in oak and scattered longleaf pine. Some areas are being cleared and planted to pine trees. (Capability unit VIs–2; woodland suitability group 6)

Lakeland coarse sand, deep, 5 to 8 percent slopes (LwC).—This soil is similar to Lakeland sand, 0 to 5 percent slopes, in color. It is on the sides of sand ridges.

The soil is strongly acid, is very low in natural fertility, and contains very little organic matter. It is extremely droughty, for infiltration and permeability are very rapid. Most of the acreage is in scrub oak, but a few areas are being cleared and planted to pine trees. (Capability unit VIIs–1; woodland suitability group 6)

Lakeland sand, shallow, 0 to 2 percent slopes (LAA).—This soil is predominantly sand in texture, but a few areas of fine sand are included. Although the surface layer is commonly dark gray, it is somewhat darker in some wooded areas. In cultivated areas the plow layer is gray. The underlying sand is yellow to yellowish brown. The depth of sand over finer textured sediments generally ranges

from 30 to 42 inches. In a few small areas the sand is 44 inches thick.

This soil is strongly acid, low in natural fertility, and low in organic-matter content. Runoff is slow, and infiltration and permeability are rapid. The available water capacity is low. This soil, therefore, tends to be droughty, especially during dry periods. It has a favorable root zone, however, and is generally in good tilth.

Because this soil has finer textured material at a depth of 30 to 36 inches than Lakeland sand, 0 to 5 percent slopes, it is better suited to cultivated crops and pasture. The crops commonly grown are corn, cotton, peanuts, and permanent pasture. Most of the acreage of this soil is in pine trees and is well suited to that use. (Capability unit IIIs–1; woodland suitability group 5)

Lakeland sand, shallow, 2 to 5 percent slopes (LAB).—The surface layer of this soil is predominantly sand, but a few small areas of fine sand are included. In undisturbed areas the surface layer is dark gray, and in cultivated areas the plow layer is lighter colored. The underlying sand ranges from yellow to yellowish brown. The depth of sand over finer textured sediments ranges from 30 to 42 inches.

Because finer textured sediments generally occur at a depth of about 34 inches, this soil is less droughty and more productive than Lakeland sand, 0 to 5 percent slopes. It is mostly in pine trees and is well suited to that use, but some areas are in cultivated crops and permanent pasture. Corn, cotton, and peanuts are commonly grown, and Coastal bermudagrass is the main pasture plant. (Capability unit IIIs–1; woodland suitability group 5)

Lakewood Series

In the Lakewood series are excessively drained, sandy soils on slopes of 5 to 8 percent. A thin layer of loose leaves and twigs covers the surface, and in most places lichens are scattered about. The surface layer is dark-gray to gray coarse sand, generally less than 4 inches thick. It is underlain abruptly by white coarse sand that extends to a depth of 20 to 30 inches and is underlain, in turn, by 3 inches or less of strong-brown coarse sand. Next in the profile is brownish-yellow coarse sand that extends to a depth of several feet. Lakewood soils are very low in natural fertility, contain little organic matter, and are strongly acid to very strongly acid.

Lakewood soils occur with the Lakeland and Leon soils. To a depth of 30 inches, Lakewood soils are much lighter colored than the Lakeland soils. They are higher and better drained than the Leon soils. Lakewood soils are adjacent to the Plummer and Rutlege soils, which are poorly drained and very poorly drained.

In this county Lakewood soils are in small areas on the sand ridges south of Screven and east of the Little Satilla River. Their native vegetation consists mostly of a very thick stand of scrub oak, scrub live oak, and staggerbush, but there are a few longleaf pines. All of the acreage is wooded. Because these soils are extremely droughty, they are not suitable for producing crops commercially.

Lakewood coarse sand, 5 to 8 percent slopes (LBC).—This is an excessively drained soil on high ridges. A brief profile description follows.

0 to 2 inches, gray, loose coarse sand.
2 to 22 inches, white, loose coarse sand.
22 to 54 inches +, brownish-yellow, loose coarse sand splotched with dark brown.

In some places the thin, gray surface layer is absent and the white coarse sand is exposed. This white coarse sand is generally about 20 inches thick, but it ranges from 18 to 30 inches in thickness. Many parts of the profile are splotched with isolated patches of dark-brown coarse sand.

This soil is very low in natural fertility, contains little organic matter, and is strongly acid or very strongly acid. Surface runoff is slow, and internal drainage and permeability are very rapid. Although its root zone is thick, this soil is extremely droughty and is not suited to cultivation. Many areas are in poor stands of trees. Included with the soil are a few small areas that have slopes of less than 5 percent. (Capability unit VIIs–1; woodland suitability group 6)

Leon Series

The Leon series is made up of somewhat poorly drained and poorly drained soils that have an organic hardpan. These soils have developed in moderately thick beds of sand that have a high, fluctuating water table. Slopes range from 0 to 2 percent. The surface layer is sand ranging from very dark gray to peppery white. Generally, this layer is about 3 inches thick. It is underlain by a white, highly leached, sandy layer that is 9 to 20 inches thick and is abruptly underlain by a dark-brown organic pan. The pan is generally underlain by grayish-brown sand. These soils are very low in organic matter, are low in natural fertility, and are very strongly acid.

The Leon soils occur with the Ona, Rutlege, Plummer, and St. Johns soils. The highly leached layer and the definite hardpan of the Leon soils are absent in Ona, Rutlege, and Plummer soils. Leon soils are better drained than the St. Johns soils and lack the black surface layer of those soils.

Leon soils are extensive in this county. The largest areas are south and southeast of Jesup, but small areas are scattered throughout most of the county. These soils are not suited to cultivated crops, because their root zone is shallow over the hardpan. The dense understory of the native vegetation is chlorotic saw-palmetto and scattered gallberry, waxmyrtle, and runner oak. The overstory consists chiefly of longleaf pine, but there are a few slash and pond pines in low places.

Leon sand (0 to 2 percent slopes) (LrA).—This is a somewhat poorly drained or poorly drained, sandy soil on level ridges. A brief profile description follows.

0 to 3 inches, dark-gray, loose sand.
3 to 16 inches, white, loose sand.
16 to 20 inches, very dark brown, firm, weakly cemented sand.
20 to 40 inches +, grayish-brown, loose sand with mottles of dark brown and light brownish gray.

The surface soil ranges from very dark gray to peppery white sand. It is underlain by a white, leached layer that lies abruptly on a dark-brown, cemented, organic hardpan.

This soil is low in natural fertility, contains little organic matter, and is very strongly acid. Infiltration and permeability are rapid in the surface layer, but because the hardpan is slowly permeable, water stands on the surface, especially in low spots, after heavy rains. In dry periods

the water table is held down by the pan, and this soil is then droughty. The available water capacity depends on the height of the water table, which fluctuates considerably. This soil responds slowly to normal management practices and is limited in its suitability to crops. The root zone is thin because of the organic hardpan, but tilth is generally fair. Little or no water runs off.

Only a small acreage of this soil is in cultivation. Almost all of it is in pine trees. (Capability unit Vw–4; woodland suitability group 8)

Lynchburg Series

In the Lynchburg series are somewhat poorly drained soils that formed in moderately sandy deposits of the Coastal Plain. Slopes range from 0 to 5 percent. The surface layer is gray to very dark grayish-brown loamy sand. The sandy clay loam subsoil is mottled light yellowish brown, light gray, and yellowish brown, and is splotched with red. These soils are low in natural fertility, contain little organic matter, and are very strongly acid.

The Lynchburg soils occur with the Goldsboro, Irvington, Klej, Plummer, and Rains soils. They are more poorly drained than the Goldsboro and Irvington soils and have a grayer subsoil. They are finer textured than the Klej soils. Lynchburg soils are higher and better drained than the Plummer and Rains soils.

The Lynchburg soils occur widely in the western half of this county, mainly northwest of Screven and near Madray Springs. Although they are suited to many kinds of crops, these soils are wet and should be drained if they are planted to cultivated crops. The native vegetation is chiefly slash and longleaf pines and a rather thick understory of gallberry, waxmyrtle, saw-palmetto, and wiregrass.

Lynchburg loamy sand, thick surface, 0 to 2 percent slopes (LzA).—This is a somewhat poorly drained soil that borders more poorly drained soils. A brief profile description follows.

0 to 9 inches, very dark grayish-brown, very friable loamy sand.
9 to 20 inches, light yellowish-brown, very friable loamy sand splotched with yellowish brown and strong brown.
20 to 28 inches, mottled light yellowish-brown and light-gray, friable sandy loam with granular structure.
28 to 42 inches +, mottled light-gray, yellowish-brown, and red sandy clay loam with moderate, subangular blocky structure.

The loamy sand surface layer ranges from gray to very dark grayish brown in color and from 18 to 30 inches in thickness. The subsoil ranges from gray to strong brown and is splotched with red in the lower part. Its texture ranges from sandy loam to sandy clay loam. South of McKinnon, a few small areas of fine sand are included.

This soil is very strongly acid and is low in natural fertility and organic matter. Infiltration and permeability are moderate, and the available water capacity is high. Tilth is good. This soil responds well to management and is suited to many kinds of crops. It has a thick root zone and is well suited to intensive use. Runoff is slow, and some drainage is needed to prevent loss of crops during wet years.

Most of this soil is cultivated, chiefly to tobacco, corn, and pasture. The rest is woodland and is well suited to that use. (Capability unit IIw–2; woodland suitability group 2)

Lynchburg loamy sand, 2 to 5 percent slopes (LvB).—This soil is similar to Lynchburg loamy sand, thick surface, 0 to 2 percent slopes. The loamy sand surface layer is generally about 14 inches thick, but it ranges from 10 to 18 inches in thickness. The total acreage is small.

This soil has a favorable root zone and is suited to many kinds of crops. Although runoff is slow, long slopes are susceptible to slight erosion if they are cultivated. Especially in wet periods, drainage is needed for highest yields. The principal crops are tobacco, corn, and pasture. This soil is well suited as woodland, and about half of it is wooded. (Capability unit IIe–3; woodland suitability group 2)

Meggett Series

In the Meggett series are poorly drained soils of the lower Coastal Plain. Slopes range from 0 to 2 percent. These soils have formed in moderately thin beds of clayey material that overlie marl. Meggett soils commonly have a very dark gray sandy loam surface layer. In most places their subsoil is sandy clay or clay. These soils are moderate in natural fertility, contain little organic matter, and are medium acid.

The Meggett soils occur with the Bladen, Coxville, Weston, and Bayboro soils. Although they closely resemble the Bladen and Coxville soils, the Meggett soils have an alkaline subsoil and overlie marl or other calcareous material. The Bladen and Coxville soils are very strongly acid throughout. The Meggett soils lack the lenses of sand that are typical of the Weston soils. They are better drained than the Bayboro soils and, in most places, have a lighter colored surface layer.

The Meggett soils in this county have a small total acreage. They are in the southeastern part of the county, in an area that is approximately 25 feet above sea level. The native vegetation is chiefly slash and longleaf pines, sweetgum, oak, maple, and wiregrass. All of the acreage is wooded. These soils are suited to pasture, but in most places they need to be drained if they are to produce good forage.

Meggett soils (0 to 2 percent slopes) (MBA).—These are poorly drained soils on low flats.

Profile description of Meggett sandy loam—

0 to 8 inches, very dark gray to gray, very friable sandy loam.
8 to 12 inches, dark-gray, friable sandy clay loam with faint mottles of light gray; weak, subangular blocky structure.
12 to 54 inches +, mottled gray and olive, firm clay; mildly alkaline; many calcareous pebbles; angular blocky structure.

The surface layer of these soils commonly is very dark gray sandy loam, but texture ranges from sandy loam to clay loam and color from very dark gray to black. The subsoil ranges from sandy clay loam to clay. The calcareous pebbles in the subsoil vary considerably in number and size and are missing in some areas. These pebbles generally are 22 to 24 inches from the surface, but the depth to the pebbles ranges from 18 to 28 inches. Soils with a clay surface layer are included.

Meggett soils are medium acid, have moderate natural fertility, and normally are low in organic matter. Those that have a black surface layer, however, contain more organic matter. Surface runoff is slow, and permeability is moderately slow or slow. The available water

capacity is high. These soils have a favorable root zone and generally are in fair to good tilth. All of their acreage is in trees; yields of pine are good. Areas that are adequately drained and otherwise well managed could produce excellent permanent pasture. Only simple practices of drainage are needed in some areas for best results. (Capability unit Vw–1; woodland suitability group 4)

Norfolk Series

The Norfolk series is made up of well-drained soils of the Coastal Plain upland. Slopes range from 0 to 5 percent. These soils commonly have a grayish-brown loamy sand surface layer and a brownish-yellow to yellow sandy clay loam subsoil. The soils are low to moderate in natural fertility, contain little organic matter, and are very strongly acid.

Norfolk soils occur with the Goldsboro, Tifton, Lakeland, and Gilead soils. They closely resemble the Goldsboro soils but are better drained. Norfolk soils have fewer concretions throughout the profile than the Tifton soils and are lighter colored and coarser textured in the subsoil. The Norfolk soils have a thicker root zone than the Gilead soils and are more friable in the subsoil. They are not so sandy as the Lakeland soils and have more distinct horizons.

Norfolk soils occur throughout the county, but their largest acreage is in the northern half. The native vegetation is chiefly mixed pine, scattered oak, and many kinds of grasses. These soils respond well to good management. Most of their acreage is in cultivation.

Norfolk loamy sand, thick surface, 2 to 5 percent slopes (NfB).—This is a well-drained soil on upland. A brief profile description follows.

0 to 6 inches, grayish-brown, loose loamy sand.
6 to 20 inches, pale-yellow to yellow, loose to very friable loamy sand.
20 to 54 inches +, brownish-yellow, friable sandy clay loam with weak, subangular blocky structure; below 36 inches are light-gray and reddish-yellow mottles.

Cultivated areas commonly have a gray surface layer. To a depth of 18 to 30 inches, this soil is predominantly loamy sand, but south of McKinnon a few small areas of loamy fine sand are included. In most places mottles are at a depth of about 36 inches, but in some places they are within 30 inches of the surface. A few small concretions of iron are on and in the soil in places.

This soil is very strongly acid, low to moderate in natural fertility, and low in organic matter. Infiltration and permeability are moderate. Tilth is generally good, and the root zone is thick. The available water capacity is medium to low. Although this soil tends to be slightly droughty, it responds to management and is suited to most of the crops grown in the county. It is used extensively for corn, cotton, peanuts, tobacco, and pasture. A few small areas are in pine trees, which is a good use for this soil. (Capability unit IIs–1; woodland suitability group 1)

Norfolk loamy sand, thick surface, 0 to 2 percent slopes (NfA).—This soil is similar to Norfolk loamy sand, thick surface, 2 to 5 percent slopes.

Natural fertility is low to moderate, and the supply of organic matter is low. Runoff is slow, and infiltration and permeability are moderate. The soil has a thick root zone, but the available water capacity is moderately low. Tilth is generally good. Although this soil tends to be slightly droughty, it responds to management and is suited to many kinds of crops. Most of the acreage is in cultivation. The principal crops are corn, cotton, peanuts, tobacco, and pasture. A few small areas are in pine trees, which are well suited to this soil. (Capability unit IIs–1; woodland suitability group 1)

Norfolk loamy sand, 0 to 2 percent slopes (NhA).—This soil is somewhat similar to Norfolk loamy sand, thick surface, 2 to 5 percent slopes. The loamy sand surface layer ranges from 10 to 18 inches in thickness but is commonly about 14 to 16 inches thick. The subsoil is olive-yellow to brownish-yellow sandy clay loam. Mottles occur at a depth of 30 to 38 inches. Small concretions of iron are scattered on the surface in many places and occur in lesser amounts throughout the profile. Included with this soil near Penholloway Creek are a few small areas that have a loamy fine sand surface layer. These included areas are mostly wooded.

This soil has a thick root zone and is generally in good tilth. It is low to moderate in natural fertility and low in content of organic matter. Infiltration and permeability are moderate, and runoff is slow. The available water capacity is moderate. Most of this soil is cultivated and is used extensively for corn, cotton, peanuts, tobacco, and pasture. The few areas that are not cultivated or in pasture are in pine trees. (Capability unit I–2; woodland suitability group 1)

Norfolk loamy sand, 2 to 5 percent slopes (NhB).—This soil is on short slopes near drainageways. In cultivated areas its loamy sand surface layer is gray. The surface layer ranges from 10 to 18 inches in thickness but generally is about 14 inches thick. In color and texture the subsoil is similar to that of Norfolk loamy sand, thick surface, 2 to 5 percent slopes.

Unless this sloping soil is well managed, it is susceptible to moderate erosion. It is low to moderate in natural fertility and low in content of organic matter. The root zone is thick. Runoff is medium, and infiltration and permeability are moderate. The available water capacity is moderate. Most of this soil is cultivated and is suited to most crops grown in the county. (Capability unit IIe-2; woodland suitability group 1)

Ona Series

In the Ona series are somewhat poorly drained soils that formed in thick beds of acid marine sand and loamy sand. Slopes range from 0 to 2 percent. To a depth of 6 inches the surface soil is dark gray to very dark gray sand. Abruptly beneath this layer is a few inches of friable, dark-brown, organic material that is underlain by pale-yellow sand. Sandy loam occurs at a depth of about 36 inches. These soils are low in natural fertility, moderate in organic-matter content, and extremely acid.

The Ona soils occur with the Leon, Blanton, Klej, and Plummer soils. They have a thicker, darker colored surface layer than the Leon soils and lack their leached layer. The brown organic layer in the subsoil of Ona soils is lacking in the Klej, Plummer, and Blanton soils. The Ona soils are more yellow throughout the profile than the Blanton soils. They are slightly higher and are better drained than the Plummer soils.

Small areas of the Ona soils occur throughout Wayne County. These soils are used mainly for the production

of timber, but cleared areas are used for row crops and pasture. Areas cleared for crops, however, need to be drained. The Ona soils are moderately well suited to row crops and are well suited to pasture and to trees. The native vegetation is pine, a few scattered oak, and an understory of saw-palmetto, runner oak, gallberry, and waxmyrtle.

Ona sand (0 to 2 percent slopes) (ObA).—This is a somewhat poorly drained, extremely acid soil on low, level or nearly level ridges. A brief profile description follows.

0 to 6 inches, dark-gray, loose sand.
6 to 10 inches, dark-brown, friable sand with weak, subangular blocky structure.
10 to 36 inches, mottled light-gray, pale-yellow, and brownish-yellow, loose sand.
36 to 54 inches +, mottled yellow, yellowish-brown, light-gray, and strong-brown, very friable sandy loam with weak, subangular blocky structure.

The surface layer is predominantly sand, but some included soils south of Jesup, along Penholloway Creek, have a surface layer of fine sand. The organic material in the subsoil is weakly cemented in some places but is generally friable. In areas grading to the Leon soils, a thin, leached layer may be present between the surface layer and the organic subsoil.

This soil is extremely acid, low in natural fertility, and moderate in organic matter. Runoff is slow. Infiltration and permeability are rapid, and the available water capacity is moderate. This soil is generally in good tilth, has a thick root zone, and responds well to management. It is well suited to pine trees and is fairly well suited to crops. Corn, tobacco, and pasture are the most commonly grown crops. Although this soil is wet in winter and spring, it is somewhat droughty during prolonged dry spells that are common late in summer and in fall. Most of this soil is used for pine trees. (Capability unit IIIw–1; woodland suitability group 8)

Plummer Series

The Plummer series consists of light-colored, poorly drained soils that formed in thick beds of sand. Slopes range from 0 to 2 percent. These soils commonly have a dark-gray sand surface layer and a gray sand subsoil. The depth from the surface to finer textured material ranges from about 30 inches to several feet. These soils are low in natural fertility, contain little organic matter, and are very strongly acid.

The Plummer soils occur with the Rutlege, Leon, St. Johns, Klej, Lynchburg, and Portsmouth soils. Plummer soils lack the distinct hardpan layer that is common in Leon and St. Johns soils, and they lack the thick, black surface layer that is common in Rutlege and Portsmouth soils. Compared to the Lynchburg and Klej soils, Plummer soils are lighter colored and more poorly drained.

Plummer soils are scattered throughout the county in a large total acreage. They are commonly on low, broad flats, but in a few places they are in seeps on slopes of 0 to 2 percent and are in depressions or ponded areas. Plummer soils have a high but fluctuating water table. Water stands on the surface during wet periods. The native vegetation is chiefly pine, blackgum, and cypress in mixed stands with an understory of gallberry, waxmyrtle, swamp holly, wiregrass, pitcher plant, and scattered saw-palmetto. Although most of the acreage is wooded, some areas are in pasture. Because these soils are wet, they are not suited to cultivation.

Plummer soils (0 to 2 percent slopes) (PeA).—These are poorly drained, sandy soils on broad flats and in slight depressions.

Profile description of Plummer sand—

0 to 5 inches, dark-gray, loose sand.
5 to 40 inches, gray, loose sand mottled with pale yellow.
40 to 50 inches +, mottled brownish-yellow and gray, friable sandy loam with weak, granular structure.

The surface layer of these soils is predominantly sand, but there are some areas of fine sand. In a sizable area south of Broadhurst, light-gray fine sand extends from the surface to a depth of about 30 inches and is underlain by finer textured material. In other parts of the county, a dark-gray, sandy surface layer, less than 3 inches thick, is underlain by white sand with a few yellow mottles. In areas where the surface layer is very dark gray or black, this color extends to a depth of not more than 8 inches. The average thickness of sand over finer textured material is about 40 inches, but the thickness ranges from 30 inches to 4 feet or more.

Plummer soils are very strongly acid and are low in natural fertility and in organic-matter content. Surface runoff is very slow or ponded, and water stands on the surface during wet periods. Infiltration and permeability are rapid. These soils are almost entirely in pine trees and are well suited to them if excess surface water has been removed. A few small areas are in permanent pasture, but these areas also need artificial drainage. (Capability unit Vw–2; woodland suitability group 4)

Portsmouth Series

In the Portsmouth series are very poorly drained soils that formed in medium-textured material. These soils have a thick, black loam surface layer that contains a large amount of organic matter. The subsoil ranges from gray to dark gray in color and from sandy clay loam to clay loam in texture. These soils are in ponded areas and depressions. They are extremely acid, low in natural fertility, and high in organic-matter content.

The Portsmouth soils occur with the Rutlege, Plummer, and Bayboro soils in swampy and depressed flats or ponded areas. Portsmouth soils are finer textured throughout the profile than the Rutlege and Plummer soils. Their surface layer is thicker than that of the Plummer soils and contains more organic matter. Portsmouth soils are sandier than the Bayboro soils and are more acid in the subsoil.

These soils are in small areas scattered throughout the southern and western parts of the county. They are suited to cultivation only if they are drained and properly managed, and even then they are suited to only a few crops. Their native vegetation is slash, loblolly, and pond pines, cypress, gum, swamp holly, waxmyrtle, and other water-tolerant plants.

Portsmouth loam (0 to 2 percent slopes) (Por).—This is a very poorly drained soil in low flats, depressions, or ponded areas. A brief profile description follows.

0 to 21 inches, black, friable loam.
21 to 36 inches, mottled dark-gray and gray, very firm clay loam with angular blocky structure.
36 to 48 inches +, mottled dark-gray and gray, very firm sandy clay loam with moderate, subangular blocky structure.

The subsoil ranges from very dark gray to gray in color and from sandy clay to clay loam in texture. In some included areas the subsoil is clay.

This soil is extremely acid, contains a large amount of organic matter in the surface layer, and is low in natural fertility. Runoff is ponded, and infiltration and permeability are moderately slow. The soil generally is in fair tilth and has a high available water capacity. Water stands on the surface during wet periods. Most of this soil is wooded. It is well suited to pine trees but needs to be drained to encourage regeneration of these trees. When it is adequately drained, the soil can also be used for truck crops or pasture. (Capability unit IIIw–2; woodland suitability group 4)

Rains Series

The Rains series is made up of poorly drained soils on large flats, in depressions, and along drainageways. These soils formed in beds of sand over sandy clay loam. Dark-gray to gray loamy sand extends to a depth of about 18 inches and is underlain by mottled gray, brownish-yellow, and yellow sandy loam to heavy sandy clay loam. These soils are very strongly acid and are low in natural fertility and in organic-matter content.

The Rains soils occur with the Plummer, Portsmouth, and Lynchburg soils. Rains soils are finer textured than Plummer soils. They are better drained than the Portsmouth soils, and are coarser textured in the lower horizons. Rains soils are more poorly drained than the Lynchburg soils and are less yellow in the subsoil.

The Rains soils in this county are mainly in the western half, but small areas are in and around Gardi and McKinnon. If these soils are properly managed, they are well suited to pine trees. Because they have a high water table, they are not generally suited to cultivation. The native vegetation is slash pine, cypress, gum, swamp holly, and other water-tolerant plants.

Rains loamy sand, thick surface (0 to 2 percent slopes) (RfA).—This is a poorly drained soil in ponded areas, drainageways, and depressions. A brief profile description follows.

0 to 4 inches, dark-gray, loose loamy sand.
4 to 18 inches, gray, loose loamy sand.
18 to 24 inches, mottled gray and brownish-yellow, very friable sandy loam.
24 to 54 inches +, mottled gray, brownish-yellow, and pale-yellow, firm sandy clay loam with moderate, subangular blocky structure.

Included are a few small areas south of McKinnon that have a fine sandy loam surface layer. In a few places the surface layer is gray. The thickness of loamy sand over finer textured material ranges from 18 to 30 inches, but the average thickness is about 24 inches. The subsoil ranges from heavy sandy loam to heavy sandy clay loam. Mottles range from few to many; the most prominent mottles are gray.

This soil is very strongly acid and is low in natural fertility and in organic matter. Surface runoff is ponded. The soil has a high available water capacity and a high water table. Infiltration and permeability are moderate. All of this soil is in mixed stands of trees, but in most places the pine trees reproduce satisfactorily only if surface water is removed. Although none of this soil is in cultivated crops and only a small part is in pasture, suitable pasture plants and other crops can be grown in adequately drained areas. (Capability unit IVw–4; woodland suitability group 4)

Rutlege Series

In the Rutlege series are very poorly drained soils of the Coastal Plain lowland. These soils have a surface layer of black sand that is underlain by gray sand mottled with light gray and, in places, with yellow, white, or strong brown. In some places these soils are underlain by finer textured sediments. These sediments are generally at a depth greater than 40 inches, but in a few areas, they are only 30 inches below the surface. These soils are low in natural fertility, have a large amount of organic matter in the surface layer, and are extremely acid.

Rutlege soils occur with the Plummer, St. Johns, and Portsmouth soils in swampy and ponded areas, and they adjoin the Leon soils on low ridges. Rutlege soils are more poorly drained than the Plummer and St. Johns soils. Their surface layer is thicker than that in the Plummer soils and contains more organic matter. They lack the organic hardpan that is common in the St. Johns and Leon soils. Rutlege soils are not so fine textured in their subsoil as the Portsmouth soils. They are lower and more poorly drained than the Leon soils.

Rutlege soils are in large areas scattered throughout the county. Their native vegetation is mostly cypress, blackgum, and a few scattered pines. The understory is a thick growth of titi, swamp holly, and other water-tolerant plants. The entire acreage of these soils is wooded. Their suitability for cultivation is limited by a high water table.

Rutlege sand (0 to 2 percent slopes) (RkA).—This is a very poorly drained soil in depressions and in large swampy areas that are locally called bays. A brief profile description follows.

0 to 12 inches, black sand that feels loamy because of the high organic-matter content.
12 to 40 inches, grayish-brown, loose sand with mottles of light gray below 19 inches.
40 to 54 inches +, dark-gray, lightly packed loamy sand.

In a few large bays the surface layer is black, mucky sand. The surface layer ranges from 8 to 25 inches in thickness, but it generally is about 10 inches thick. The subsoil is predominantly gray or grayish-brown sand that, in some places, is mottled with white, strong brown, or yellow and, in other places, is streaked and stained with brown. The depth to finer textured material ranges from 30 inches to several feet, but the average depth is about 40 inches. Included with this soil near McKinnon are a few small areas in which fine sand extends from the surface to a depth of 40 inches.

This soil is extremely acid, contains much organic matter in the surface layer, and is low in natural fertility. Tilth is generally good, and the root zone is thick. Runoff is ponded, and except during prolonged dry periods, water stands on the surface or is near the surface. This soil is too wet for cultivated crops. All of it is in mixed forest, but the pine trees regenerate satisfactorily only if excess surface water is removed. (Capability unit Vw–2; woodland suitability group 4)

Sawyer Series

In the Sawyer series are moderately well drained, strongly acid soils on upland slopes of 2 to 30 percent. Uneroded areas normally have a dark grayish-brown loamy sand surface layer and a firm, yellowish-brown sandy clay to clay subsoil. In many places grains of quartz and a few concretions of iron are on the surface and in the surface layer. These soils are moderately low in natural fertility, contain little organic matter, and are strongly acid.

The Sawyer soils occur with the Lakeland and Gilead soils. They are generally bordered on their lower side by Plummer, Rains, or other poorly drained soils. Sawyer soils are not so well drained nor so coarse textured as the Lakeland soils. Their surface layer is similar to that of Gilead soils, but their subsoil is finer textured.

Most of the Sawyer soils in this county are in the northwestern part. The native vegetation is chiefly longleaf pine, slash pine, sweetgum, and blackjack oak. The understory is waxmyrtle, gallberry, and wiregrass. Although most of the acreage is wooded, crops commonly grown in the county produce fairly good yields.

All the acreage of Sawyer soils in this county is mapped in undifferentiated units with the Gilead and Lakeland soils.

St. Johns Series

In the St. Johns series are very poorly drained soils on the lower Coastal Plain. These soils have a black, sandy surface layer that contains many fibrous roots and generally is underlain by gray to white, leached sand over a very dark grayish-brown, organic hardpan. The transition between the sand and the hardpan is abrupt. The pan is underlain by mottled, very dark grayish-brown and brown sand. These soils are extremely acid, low in natural fertility, and moderate in organic-matter content.

St. Johns soils occur with the Leon, Rutlege, and Plummer soils. They are similar to Leon soils but occupy lower positions and have a thicker, black surface layer. Unlike the Rutlege and Plummer soils, St. Johns soils have an organic hardpan.

St. Johns soils are scattered throughout Wayne County, but the largest areas are in the southern and eastern parts. They are not suited to cultivated crops, and all are used as woodland. Their native vegetation is mainly scattered slash and pond pines, cypress, blackgum, and an undergrowth of saw-palmetto, waxmyrtle, gallberry, and hurrahgrass.

St. Johns sand (0 to 2 percent slopes) (Stj).—This is a very poorly drained soil on low flats adjacent to large bays. A brief profile description follows.

0 to 6 inches, black, loose sand that feels loamy because of high organic-matter content.
6 to 13 inches, gray, loose sand.
13 to 19 inches, very dark grayish-brown, slightly cemented, friable sand.
19 to 50 inches +, mottled very dark grayish-brown and brown, loose sand.

The surface layer is predominantly black, but it is very dark gray in a few areas. It ranges from 4 to 8 inches in thickness. The 6- to 13-inch layer ranges from gray to almost white and commonly is about 7 inches thick. In some places, however, this layer is 18 inches thick, and in a few places it is absent. The 13- to 19-inch layer is very dark grayish brown in most places but is almost black in a few places. This layer ranges from 4 to 8 inches in thickness. It commonly is slightly cemented, but it is brittle in a few places and is very friable in some. In a few areas fine sand extends throughout the entire profile.

This soil is extremely acid, low in natural fertility, and moderate in organic matter. Surface runoff is very slow. The movement of water within this soil is restricted by the organic hardpan, which often traps free water in the surface layer. Tilth is generally good, and the root zone is moderately thick. Because it has a high water table, this soil is not suited to cultivation. It is suited to pine trees. (Capability unit Vw–2; woodland suitability group 4)

Sunsweet Series

In the Sunsweet series are well-drained soils on the Coastal Plain upland. Slopes range from 5 to 17 percent. The less eroded areas commonly have a gray to very dark grayish-brown sandy loam surface layer. The subsoil is red to reddish-brown sandy clay loam. In most places the root zone is shallow; hard, compact, reticulately mottled material begins at a depth between 9 and 12 inches. Many hard, concretionary pebbles and a few quartz pebbles are on the surface and in the soil. These soils are low in natural fertility, contain little organic matter, and are very strongly acid.

Sunsweet soils occur with the Tifton, Gilead, and Lakeland soils. They resemble the Tifton soils but have a much thinner root zone. Sunsweet soils are not so sandy as the Gilead and Lakeland soils and are darker brown in the subsoil.

In this county the Sunsweet soils are mainly near Madray Springs, in the northwestern part of the county. Typically, they are in small areas where the slope changes abruptly. Their native vegetation is mostly longleaf, slash, and loblolly pines, a few scrub oak, and a thin stand of wiregrass. Most of the acreage is wooded, but a few areas are in pasture. A shallow root zone and susceptibility to erosion limit the suitability of these soils for cultivation. Cleared areas erode readily.

Sunsweet soils, 5 to 12 percent slopes, eroded (SmD2).—These well-drained soils on the Coastal Plain upland have a shallow root zone.

Profile description of Sunsweet sandy loam—

0 to 6 inches, very dark grayish-brown to brown, very friable sandy loam; many hard, concretionary pebbles and a few quartz pebbles.
6 to 9 inches, red sandy clay loam with subangular blocky structure.
9 to 38 inches, mottled yellowish-red, red, yellow, and light-gray, compact sandy clay loam with moderate, subangular blocky structure.
38 to 70 inches +, mottled red, reddish-yellow, and light-gray, friable coarse sandy loam with weak, subangular blocky structure.

The surface layer ranges from gray to very dark grayish brown in color and from sandy loam to sandy clay in texture. The number and size of pebbles on the surface and in the soil vary widely. These pebbles range from common to many and generally are less than 2 inches in diameter. Color of the underlying horizons varies greatly from place to place. In many places erosion has

exposed material formerly in the subsoil. Seeps occur below these soils at the foot of slopes.

These soils are very strongly acid, are low in natural fertility, and contain little organic matter. Their surface soil is generally in poor tilth, and the compact layer limits the rooting depth and the amount of moisture that is available to plants. Infiltration and permeability are slow. These soils are not suited to cultivation, but if well managed, are fair for pasture and pine trees. (Capability unit VIe–2; woodland suitability group 7)

Sunsweet soils, 8 to 17 percent slopes, severely eroded (SmE3).—These soils have a thinner surface layer than Sunsweet soils, 5 to 12 percent slopes, eroded. In this county they are only on the sharp breaks along Little Goose Creek and the Altamaha River in the northwestern part.

These soils are generally in poor tilth. Infiltration and permeability are slow, and the root zone is shallow. Surface runoff is rapid, and erosion is a severe hazard. The soils are not suited to cultivated crops or pasture and are only fair for pine trees. (Capability unit VIIe–2; woodland suitability group 7)

Susquehanna Series

In the Susquehanna series are somewhat poorly drained soils on the Coastal Plain upland. Slopes range from 2 to 8 percent. Uneroded areas of these soils have a few inches of very dark gray loamy sand over pale-yellow loamy sand. Generally, clayey material occurs at a depth of about 10 inches and is highly mottled with red, gray, and brownish yellow. From place to place the mottling varies in color and intensity. In this county, rock generally underlies these soils at a depth ranging from 22 to 30 inches. These soils are low in natural fertility, contain little organic matter, and are strongly acid.

Susquehanna soils occur with the Plummer and Gilead soils. They have a finer textured and more plastic subsoil than the Gilead soils. They occupy a higher position than the Plummer soils, are better drained, and are much finer textured throughout the profile.

In this county, Susquehanna soils are in small areas in the extreme northwestern part. The native vegetation is chiefly longleaf pine, oak, sweetgum, and an understory of wiregrass. All of the acreage is wooded. Because these soils are shallow to dense, plastic clay, their suitability for cultivated crops is limited.

Susquehanna loamy sand, shallow, 2 to 8 percent slopes (SoC).—This somewhat poorly drained soil is on the Coastal Plain upland. A brief profile description follows.

0 to 4 inches, very dark gray, very friable loamy sand.
4 to 10 inches, pale-yellow, very friable loamy sand.
10 to 16 inches, red and brownish-yellow, friable sandy clay with moderate, subangular blocky structure.
16 to 24 inches, mottled gray, brownish-yellow, and red, firm clay with moderate, angular blocky structure.
24 inches +, sandstone ledge.

This soil is predominantly loamy sand to a depth of about 10 inches, but in some included areas the loamy sand extends to a depth of 18 to 20 inches. The subsoil is sandy clay that grades toward clay as the depth increases. The sandy clay layer is absent, however, in some places.

This soil is strongly acid, is low in natural fertility, and contains little organic matter. It is generally in good tilth. The available water capacity is moderately high. The clayey subsoil is slowly permeable. It is very sticky when wet, and it hardens and cracks as it dries. This layer limits the thickness of the root zone and, consequently, the kinds of crops that can be grown. The rock underlying most of this soil also limits the root zone, and it crops out in a few places. Cleared areas are susceptible to severe erosion. (Capability unit VIe–2; woodland suitability group 7)

Swamp

Swamp is in areas of alluvium along rivers and large creeks and in large, low areas locally called bays. It is wet most of the time where it lies along rivers and creeks. In winter and spring it is generally flooded and receives fresh sediments.

Swamp (Swa).—In most places the surface layer of this land is dark-gray to black loamy sand or sandy loam that contains partly decomposed leaves, twigs, roots, and logs. Beneath this layer is a mixture of mineral and organic material that is commonly stratified or interbedded. These materials are extremely variable in color and texture, but generally they are dark gray or gray and loamy sand or sandy loam. The texture becomes finer as the depth increases. The organic-matter content is very high in the larger bays and is generally medium to low near the large streams and rivers. The soil material is generally very strongly acid and is low in natural fertility.

Generally, Swamp is separated from the upland by a bluff that is 20 to 30 feet high. It adjoins Wet alluvial land, in most places, and is similar to that land. Swamp, however, is covered with water most of the time and is fed by rivers and large creeks.

Swamp is extensive in Wayne County. The largest area is along the Altamaha River, but other areas are along Big Satilla Creek, the Little Satilla River, Big Cypress Swamp, and Penholloway Bay. Swamp is entirely in forest and is best suited to that use. The principal trees are cypress, swamp blackgum, red maple, ash, water oak, swamp chestnut, yellow-poplar, willow, and sweetgum. In places there is a thick understory of titi, alder, fetter-bush, chokeberry, huckleberry, wild azalea, and bamboo vine.

Included with Swamp are small islands and hammocks of sandy material that are covered with water when floods are extremely high. Swamp is not suited to cultivated crops, because water stands on it most of the time and flooding is frequent. (Capability unit VIIw–1; no woodland suitability group)

Tifton Series

In the Tifton series are well-drained soils of the Coastal Plain upland. These soils formed in thick beds of reticulately mottled sandy clay on slopes ranging from 0 to 8 percent. The plow layer is dark-gray to grayish-brown loamy sand that is underlain in most places by yellowish-brown sandy clay at a depth of about 16 inches. Many small, rounded, brown concretions of iron, ½ to 1 inch in diameter, are on the surface and throughout the profile. These soils are low to moderate in natural fertility, contain little organic matter, and are very strongly acid.

The Tifton soils occur with the Norfolk, Lakeland, Gilead, and Irvington soils. The Tifton soils are finer textured in the subsoil than the Norfolk and Lakeland soils and, unlike those soils, contain an abundance of iron concretions. Tifton soils have a browner and more friable subsoil than the Gilead soils. They are similar to Irvington soils but are better drained.

The Tifton soils are in the western half of the county. Their largest acreage is north of Screven and in and around Madray Springs. These soils are among the most productive in the county and have a wide range of suitability. Most of their acreage has been cleared and is in cultivated crops. The native vegetation in uncleared areas is chiefly slash and longleaf pines, oak, and an understory of scrub trees, briers, and wiregrass.

Tifton loamy sand, 2 to 5 percent slopes (TqB).—This is a well-drained soil on uplands. A brief profile description follows.

0 to 5 inches, dark grayish-brown, very friable loamy sand with many iron concretions.
5 to 10 inches, very pale brown, very friable loamy sand with many iron concretions.
10 to 16 inches, yellowish-brown, very friable sandy loam with weak, subangular blocky structure.
16 to 36 inches, yellowish-brown, friable sandy clay with moderate, subangular blocky structure.
36 to 60 inches +, mottled yellowish-brown, brown, and red, friable sandy clay loam with moderate, subangular blocky structure.

From place to place the concretions vary considerably in number and size. Normally, about 15 percent of the upper 6 inches consists of these concretions, and many occur throughout the rest of the profile. The loamy sand extends to a depth of 8 to 18 inches, but its average depth is 10 to 12 inches. Mottling normally begins 34 to 36 inches from the surface, but the depth to mottling ranges from 28 to 40 inches.

This soil has a thick root zone and is generally in good tilth. It is low to moderate in natural fertility, contains little organic matter, and is very strongly acid. Infiltration and permeability are moderate, and the available water capacity is medium. Runoff is medium. This soil is one of the most productive soils in the county and is suited to most of the crops grown. In cultivated areas, however, the erosion hazard is slight to moderate. (Capability unit IIe–2; woodland suitability group 1)

Tifton loamy sand, 0 to 2 percent slopes (TqA).—The loamy sand surface layer of this soil is 14 to 16 inches thick. The subsoil is yellowish-brown, friable sandy clay. The depth to finer textured material ranges from 10 to 18 inches. This soil is similar to Tifton loamy sand, 2 to 5 percent slopes, but it does not need special management. It is well suited to the crops grown in the county. (Capability unit I–2; woodland suitability group 1)

Tifton loamy sand, 2 to 5 percent slopes, eroded (TqB2).—All of this soil has been cultivated at some time. The loamy sand surface layer is generally less than 7 inches thick, and much subsoil material has been mixed into it through plowing. In a few shallow gullies the subsoil is exposed. This soil is on very gentle slopes that adjoin streams. Surface runoff is medium, and erosion is a moderate hazard if the soil is cultivated. This soil is suited to many kinds of crops. (Capability unit IIe–2; woodland suitability group 1)

Tifton loamy sand, thick surface, 0 to 2 percent slopes (TrA).—In this soil loamy sand extends to a depth of 18 to 30 inches and is underlain by yellowish-brown, friable sandy clay. Because the surface layer is thick loamy sand, this soil is slightly droughty during prolonged dry periods. Runoff is slow, and there is little or no erosion hazard. Infiltration and permeability are moderate to moderately rapid, and the available water capacity is moderately low. The root zone is thick. This soil is suited to many kinds of crops, and a large part is cultivated. (Capability unit IIs–1; woodland suitability group 1)

Tifton loamy sand, thick surface, 2 to 5 percent slopes (TrB).—The loamy sand surface layer of this soil extends to an average depth of 22 inches, but it ranges from 18 to 30 inches in depth. It is underlain by yellowish-brown, friable sandy clay.

This soil is slightly droughty during prolonged dry periods. It has moderate to moderately rapid infiltration and permeability and is moderately low in available water capacity. Runoff is slow. Erosion is a slight hazard if long slopes are cultivated. Natural fertility is low to moderate, and the content of organic matter is low. The root zone is favorable for crops. This soil is suited to many kinds of crops, and most of it is cultivated. (Capability unit IIs–1; woodland suitability group 1)

Tifton loamy sand, thin solum, 2 to 5 percent slopes (TvB).—This is a well-drained soil on uplands. A brief profile description follows.

0 to 10 inches, very friable loamy sand that is dark grayish brown in the upper 6 inches and grades to brownish yellow in the lower part; many pebbles scattered on the surface and in this layer.
10 to 25 inches, brownish-yellow, firm sandy clay with moderate, medium, subangular blocky structure; red and light brownish-gray mottles below 19 inches; few pebbles.
25 to 36 inches, mottled pink, brownish-yellow, white, and red sandy clay loam with subangular blocky structure; few pebbles.

Normally, about 20 percent of the upper 6 inches consists of pebbles, but these pebbles vary in number and size from place to place. In the surface layer the pebbles are hard, but in the underlying layers they range from brittle to hard. The surface layer is 8 to 13 inches thick over sandy clay loam or sandy clay, but the average thickness is 10 inches. The subsoil is predominantly sandy clay. Mottling normally begins about 20 inches from the surface.

The favorable root zone of this soil averages about 24 inches in thickness. Below this depth, sufficient available moisture and plant nutrients are lacking and the soil material hinders penetration of roots. Tilth of the surface layer is good, but the pebbles are so numerous in some places that they hinder cultivation and the harvesting of peanuts. Natural fertility is low to moderate, the content of organic matter is low, and the soil is very strongly acid. Infiltration and permeability are moderate, and the available water capacity is medium. Runoff is medium. Erosion is a moderate hazard in cultivated areas. This soil is fairly well suited to many kinds of crops, and most of it is cultivated. (Capability unit IIe–4; woodland suitability group 1)

Tifton loamy sand, thin solum, 2 to 5 percent slopes, eroded (TvB2).—The loamy sand surface layer of this soil is underlain by sandy clay. This soil is similar in many respects to Tifton loamy sand, thin solum, 2 to 5 percent slopes. Erosion, however, has thinned the surface layer to 8 inches or less, and plowing has mixed the upper part

of the subsoil into it. The mixing has made the surface layer spotty.

A few shallow gullies have cut into this soil and have exposed the subsoil. Although this soil is suited to most of the crops grown in the county, cultivated areas must be intensively managed. (Capability unit IIIe–4; woodland suitability group 1)

Tifton loamy sand, thin solum, 5 to 8 percent slopes (TvC).—This soil is similar to Tifton loamy sand, thin solum, 2 to 5 percent slopes. Its loamy sand surface layer is 8 to 13 inches thick over clayey material.

Most of the soil is wooded, but some parts are in pasture, and a very small part is cultivated. The soil is fairly well suited to most crops grown in the county, but cultivated fields need intensive management because slopes are strong and the erosion hazard is moderate to severe. (Capability unit IIIe–4; woodland suitability group 1)

Tifton loamy sand, thin solum, 5 to 8 percent slopes, eroded (TvC2).—This soil is on slope breaks near streams. All of it has been cleared and cultivated, but most of the acreage has reverted to forest. The plow layer appears spotty because tillage has mixed material from the upper subsoil into the surface layer, which is less than 7 inches thick. The solum is generally about 24 inches thick, but in a few places it is slightly thicker and in others is only 20 inches thick. Shallow gullies are few, and occasional deep ones have cut far enough into the soil to expose the lower horizons.

Although most of this soil is wooded, a few areas are cultivated or are in pasture. The root zone is shallow to clayey material. Runoff is medium or rapid, and the erosion hazard is moderate to high. The available water capacity is moderate to low. (Capability unit IVe–4; woodland suitability group 1)

Wahee Series

The Wahee series consists of moderately well drained and somewhat poorly drained, level or nearly level soils on stream terraces. These soils have a gray to grayish-brown fine sandy loam surface layer and a light yellow to yellowish-brown sandy clay subsoil. The depth to mottled material ranges from 12 to 22 inches. These soils are low to moderate in natural fertility, contain little organic matter, and are very strongly acid.

Wahee soils occur with the Klej and Plummer soils but are finer textured than those soils. They are better drained than the Plummer soils but are subject to periodic flooding by streams.

In this county Wahee soils are in small areas along Big Satilla Creek, Penholloway Creek, the Little Satilla River, and the Altamaha River. The native vegetation is chiefly pine, oak, and sweetgum in mixed stands and an understory of gallberry, waxmyrtle, and wiregrass. Almost all of the acreage is wooded, but a few areas are in pasture. Because these soils are in small areas and are surrounded by lower lying, poorly drained soils, they are limited in their suitability for cultivated crops.

Wahee fine sandy loam (0 to 2 percent slopes) (Waf).—This is a moderately well drained or somewhat poorly drained soil on stream terraces. A brief profile description follows.

0 to 13 inches, very friable fine sandy loam that is grayish brown above 9 inches and light yellowish brown below.
13 to 40 inches, mottled yellowish-brown, brownish-yellow, and gray, firm sandy clay with weak, angular blocky structure.
40 to 48 inches +, mottled brownish-yellow and gray, very firm, massive sandy clay.

In places the subsoil is clay or silty clay. The depth from the surface to mottled, finer textured material ranges from 12 to 22 inches.

This soil is very strongly acid, is low to moderate in natural fertility, and contains little organic matter. The surface soil is generally in good tilth. Permeability is moderate, and the root zone is deep. The available water capacity is high. The soil is well suited to cultivation, but good management, including drainage, is needed. Generally it is in small, remote areas and is surrounded by lower lying, poorly drained soils. It is well suited to pine trees. (Capability unit IIIw–2; woodland suitability group 2)

Weston Series

In the Weston series are poorly drained soils on broad flats and in slightly ponded areas. These soils have formed on low marine terraces in beds of sand over clayey material. The surface layer is dark gray to black and is sandy. At a depth of about 22 inches the material is gray, mottled clay or sandy clay that contains lenses of sand. These soils are low in organic matter and natural fertility and are very strongly acid.

Weston soils occur with the Bladen, Coxville, Bayboro, Portsmouth, and Eulonia soils. They have a thicker surface layer and are sandier than the Bladen, Coxville, and Bayboro soils. Weston soils are not so poorly drained as Portsmouth soils. They are lower and less well drained than the Eulonia soils.

The Weston soils in this county are northeast and south of Mount Pleasant, in the extreme eastern part. In places they are intricately mixed with the Bladen and Coxville soils, and the soils of the three series are mapped together because the areas are too small to be mapped separately. The native vegetation is mostly pine, sweetgum, maple, cypress, and blackgum in mixed stands and an understory of waxmyrtle, gallberry, sawpalmetto, and wiregrass. All of the acreage is wooded. Because drainage is poor, these soils are not suited to cultivated crops.

Weston soils (0 to 2 percent slopes) (WlA).—These are poorly drained, very strongly acid soils on low flats or in depressions. A profile description of Weston loamy sand follows.

0 to 6 inches, dark-gray, very friable loamy sand.
6 to 22 inches, gray loamy sand mottled with yellowish brown.
22 to 28 inches, mottled gray, yellowish-brown, and light-gray, firm sandy clay with moderate, subangular blocky structure; prominent lenses of sand.
28 to 56 inches +, mottled yellowish-brown and gray, firm clay with weak, angular blocky structure; prominent lenses of sand.

The surface layer of these soils is variable. It is predominantly loamy sand, but in some places it is loamy fine sand and in others is sandy loam. The depth to clayey material ranges from about 8 to 30 inches. Lenses of sand are scattered throughout the clayey part of the profile, but these vary considerably in size and in proportion of sand.

These soils make up only a small part of this county. They are very strongly acid, are low in natural fertility, and contain little organic matter. Their root zone is thick, and tilth is generally good. Permeability is moderate, and the available water capacity is high. All of the acreage is wooded. If these soils are cleared and are used for cultivated crops, they need to be drained. (Capability unit IIw–2; woodland suitability group 4)

Wet Alluvial Land

Wet alluvial land consists of unconsolidated alluvium that is generally stratified and varies widely in texture. The soil material was recently deposited by streams and is subject to frequent change through flooding.

Wet alluvial land (Avp).—This land consists of intermixed sand, clay, and other sediments that have been recently deposited by streams. Drainage is poor or very poor, and the water table is high. Frequent flooding is likely. Because sediments are deposited continually, the surface layer is extremely variable in color, though in most places it is very dark gray or black. The texture ranges from sand to sandy loam. The underlying material also is variable in texture and is generally gray or dark gray.

Wet alluvial land commonly adjoins Swamp and the Rains, Plummer, and Rutlege soils. Horizons in this soil are less distinct than those in the Rains, Plummer, and Rutlege soils. Swamp is confined to large stream deposits and to large swampy areas, locally called bays.

Wet alluvial land in this county is mainly scattered throughout the southwestern part, but some smaller areas are in the northwestern part where many small streams feed the Altamaha River. The native vegetation is mostly blackgum, maple, bay, cypress, poplar, willow, a few slash pine, and a thick understory of titi and fetterbush. All of the acreage is wooded. Frequent floods limit the use of Wet alluvial land to trees and wildlife. (Capability unit IVw–4; woodland suitability group 4)

Use and Management of Soils

This section discusses the use and management of soils for crops and pasture, as woodland, for wildlife and fish, and in engineering works.

Crops and Pasture

This subsection has three main parts. In the first part, the capability grouping is explained. In the second part, the soils of the county are placed in capability units and the use and management of these units are discussed. The third part contains a table that lists estimated yields. Also, management is suggested that helps to produce these yields.

Capability groups of soils

The capability classification is a grouping of soils that shows, in a general way, how suitable soils are for most kinds of farming. It is a practical grouping based on limitations of the soils, the risk of damage when they are used, and the way they respond to management.

In this system all the kinds of soil are grouped at three levels, the capability class, subclass, and unit. Eight capability classes are in the broadest grouping and are designated by Roman numerals I through VIII. In class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other seven classes have progressively greater natural limitations. In class VIII are soils and landforms so rough, shallow, or otherwise limited that, without major reclamation, they do not produce worthwhile yields of crops, forage, or wood products.

The subclasses indicate major kinds of limitations within the classes. Within most of the classes there can be as many as four subclasses. The subclass is indicated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral; for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* means that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the country, indicates that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few or no limitations. Class V can contain, at the most, only subclasses *w*, *s*, and *c*, because the soils in it have little or no susceptibility to erosion but have other limitations that limit their use largely to pasture, range, woodland, or wildlife.

Within the subclasses are the capability units, which are groups of soils enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally identified by numbers assigned locally, for example, IIe–2 or IIIe–4. These numbers are not consecutive in Wayne County, because not all of the capability units used in Georgia occur in this county.

Soils are classified in capability classes, subclasses, and units in accordance with the degree and kind of their permanent limitations; but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soil; and without consideration of possible but unlikely major reclamation projects.

The eight classes in the capability system, and the subclasses and units in this county, are described in the list that follows.

Class I. Soils that have few limitations that restrict their use.

Capability unit I–2.—Well-drained soils on uplands with slopes of 0 to 2 percent.

Class II. Soils that have some limitations that reduce the choice of plants or that require moderate conservation practices.

Subclass IIe. Soils moderately susceptible to erosion if they are not protected.

Capability unit IIe–2.—Well-drained soils on uplands with slopes of 2 to 5 percent.

Capability unit IIe–3.—Somewhat poorly drained and moderately well drained soils on uplands with slopes of 2 to 5 percent.

Capability unit IIe–4.—Moderately well drained to excessively drained soils on uplands with slopes of 2 to 5 percent.

Subclass IIw. Soils that have moderate limitations because of excess water.

Capability unit IIw–2.—Moderately well drained and somewhat poorly drained soils with slopes of 0 to 2 percent.

Capability unit IIw–3.—Moderately well drained, fine-textured soil on low ridges with slopes of 0 to 2 percent.

Subclass IIs. Soils that have moderate limitations of moisture capacity or tilth.

Capability unit IIs–1.—Well-drained soils that have a loamy sand surface layer, 18 to 30 inches thick, over a friable, permeable subsoil. Slopes range from 0 to 5 percent.

Class III. Soils that have severe limitations that reduce the choice of plants, require special conservation practices, or both.

Subclass IIIe. Soils subject to severe erosion if they are cultivated and are not protected.

Capability unit IIIe–4.—Well drained, moderately well drained, and excessively drained soils on uplands with slopes of 2 to 8 percent.

Subclass IIIw. Soils that have severe limitations because of excess water.

Capability unit IIIw–1.—Moderately well drained and somewhat poorly drained, sandy soils on broad, low ridges with slopes of 0 to 2 percent.

Capability unit IIIw–2.—Mainly poorly drained and very poorly drained soils that are on lowlands and have a fine-textured subsoil.

Subclass IIIs. Soils that have severe limitations of moisture capacity or tilth.

Capability unit IIIs–1.—Somewhat excessively drained soils that have surface layers of sand, 30 to 42 inches thick.

Capability unit IIIs–3.—Moderately well drained soil that has a layer of sand extending to a depth of 42 inches or more.

Class IV. Soils that have very severe limitations that restrict the choice of plants, require very careful management, or both.

Subclass IVe. Soils subject to very severe erosion if they are cultivated and not protected.

Capability unit IVe–4.—Moderately well drained to excessively drained, eroded soils on uplands with slopes of 5 to 8 percent.

Subclass IVw. Soils that have very severe limitations to cultivation because of excess water.

Capability unit IVw–4.—Poorly drained and very poorly drained soils in depressions and drainageways.

Subclass IVs. Soils that have very severe limitations of moisture capacity, severe leaching, or other soil features.

Capability unit IVs–1.—Excessively drained, sandy soils on ridges with slopes of 0 to 8 percent.

Class V. Soils not likely to erode that have other limitations, impractical to remove without major reclamation, that limit their use largely to pasture or range, woodland, or wildlife food and cover.

Subclass Vw. Soils that are too wet for cultivation and cannot be feasibly drained or protected.

Capability unit Vw–1.—Poorly drained and very poorly drained soils with clayey subsoils.

Capability unit Vw–2.—Poorly drained and very poorly drained, sandy soils on broad flats and in drainageways.

Capability unit Vw–4.—Somewhat poorly drained and poorly drained, sandy soil on low ridges.

Class VI. Soils that have severe limitations that make them generally unsuited to cultivation and that limit their use largely to pasture or range, woodland, or wildlife food and cover.

Subclass VIe. Soils severely limited, chiefly by risk of erosion if protective cover is not maintained.

Capability unit VIe–2.—Moderately well drained to excessively drained soils that are eroded or are susceptible to erosion and occur on uplands with slopes of 2 to 12 percent.

Subclass VIs. Soils generally unsuitable for cultivation and limited for other uses by their moisture capacity and excessive leaching.

Capability unit VIs–2.—Excessively drained soils on high sand ridges with slopes of 2 to 12 percent.

Class VII. Soils that have very severe limitations that make them unsuited to cultivation without major reclamation, and that restrict their use largely to grazing, woodland, or wildlife.

Subclass VIIe. Soils very severely limited, chiefly by risk of erosion if protective cover is not maintained.

Capability unit VIIe–2.—Soils that are on slopes of 8 to 30 percent and are severely eroded or susceptible to severe erosion.

Subclass VIIw. Soils very severely limited by excess water.

Capability unit VIIw–1.—Very poorly drained, alluvial soil in swampy areas on the flood plains of rivers and creeks.

Subclass VIIs. Soils very severely limited by moisture capacity and excessive leaching.

Capability unit VIIs–1.—Excessively drained coarse sands on ridges with slopes of 5 to 8 percent.

Class VIII. Soils and landforms that have limitations that preclude their use, without major reclamation, for commercial production of plants and that restrict their use to recreation, wildlife, water supply, or esthetic purposes. No soils in Wayne County are in class VIII.

Management by capability units

The soils in Wayne County have been grouped in 23 capability units. The soils in each unit have about the same limitations and susceptibility to damage, need about the same management, and respond to management in about the same way. In the following pages each capability unit is described, the soils in it are named, and management for the unit is suggested.

CAPABILITY UNIT I-2

In this capability unit are nearly level, well-drained soils on uplands, chiefly in the western half of the county. These soils have a very friable loamy sand surface layer 10 to 18 inches thick. In most places the subsoil is yellowish-brown to brownish-yellow, friable sandy clay or sandy clay loam. The soils are—

Norfolk loamy sand, 0 to 2 percent slopes.
Tifton loamy sand, 0 to 2 percent slopes.

These soils are low to moderate in natural fertility and have a low content of organic matter. They are very strongly acid. Water moves into and through the soils at a moderate rate. The available water capacity is moderate. Tilth is generally good, and the thick root zone can be worked within a wide range of moisture content.

This group of soils amounts to slightly more than 1 percent of the county, and about 80 percent of the acreage is cultivated. The soils are suited to many kinds of crops. Among the row crops that produce high yields under good management are corn, cotton, peanuts, tobacco, and oats and rye and other small grains. Lupine, beggarweed, and soybeans are well suited legumes, and Coastal bermudagrass and bahiagrass are some of the better suited grasses. Pecan trees and many truck and nursery crops also are suited.

These soils present no special problems of management, but pebbles in a few areas of the Tifton soil interfere with the harvest of peanuts. The soils in this group respond well to fertilization and should be limed and fertilized in amounts indicated by soil tests. These soils can be tilled intensively with little special management and without great risk of erosion. To help maintain good tilth and the supply of organic matter, it is best to return crop residue to the soils and to use soil-improving crops at least 1 year out of every 4. Examples of suitable cropping systems are—

Row crops for 3 years and sod crops for 2 years or more.
Row crops grown continuously with a reseeding legume; permit the legume to mature and produce a seed crop at least every third year.
Row crops year after year and a winter legume in alternate years.

CAPABILITY UNIT IIe-2

In this capability unit are very gently sloping, well-drained soils on uplands, chiefly in the western half of the county. The surface layer is very friable to friable loamy sand 6 to 18 inches thick. The subsoil is predominantly friable to firm sandy clay, but it ranges from sandy clay loam to sandy loam in the upper 4 to 10 inches. The soils are—

Norfolk loamy sand, 2 to 5 percent slopes.
Tifton loamy sand, 2 to 5 percent slopes.
Tifton loamy sand, 2 to 5 percent slopes, eroded.

Many iron concretions, as much as 1 inch in diameter, are on and in the Tifton soils, and a few concretions are in the Norfolk soils in places. These soils are low to moderate in natural fertility, contain little organic matter, and are very strongly acid. Water moves into and through them at a moderate rate, and the available water capacity is medium to low. Tilth is generally good, and the thick root zone can be worked within a wide range of moisture content.

This group of soils amounts to slightly more than 2 percent of the county, and about 70 percent of the acreage is cultivated. The soils are suited to many kinds of crops. Among the crops that produce high yields under good management are corn, cotton, peanuts, tobacco, soybeans, and oats and rye and other small grains. Lupine, beggarweed, and velvetbeans are suited legumes, and Coastal bermudagrass and bahiagrass are among the better suited grasses. Pecan trees and many truck and nursery crops also are as suited.

Runoff on these soils is rapid enough to cause slight erosion. In places on the Tifton soils, pebbles are especially numerous and interfere with the harvest of peanuts. In cultivated areas on soils in this group, one or more of these practices are needed to control erosion and to maintain productivity: Terracing, stripcropping, tilling on the contour, using grasses and legumes in the cropping system, grassing water-disposal areas, plowing under cover crops or green-manure crops, and stubble mulching (fig. 2). At least 1 year out of every 2 or 3 years, these soils need to be protected by close-growing crops, soil-improving crops, or crops that produce a large amount of residue.

Figure 2.—**Oat stubble overplanted to corn on Norfolk loamy sand, 2 to 5 percent slopes. Capability unit IIe-2.**

These soils are suited to sprinkler irrigation. Some of the natural drains provide good pond sites. Examples of suitable cropping systems are—

Row crops for 2 years and a small grain and a summer legume for 1 year.
Row crops planted every other year in sod, with the middles undisturbed.
Row crops for 2 years and perennial sod crops for 2 years or more.

CAPABILITY UNIT IIe-3

In this capability unit are somewhat poorly drained and moderately well drained soils on slopes of 2 to 5 percent. The surface layer is very friable loamy sand or fine sandy loam 12 to 30 inches thick. It is underlain chiefly by friable to firm sandy clay or sandy clay loam. The soils are—

Dunbar fine sandy loam, 2 to 5 percent slopes.
Eulonia loamy fine sand, 2 to 5 percent slopes.
Goldsboro loamy sand, thick surface, 2 to 5 percent slopes.
Irvington loamy sand, thick surface, 2 to 5 percent slopes.
Lynchburg loamy sand, 2 to 5 percent slopes.

In the Irvington soil there is a weakly cemented hardpan approximately 25 inches below the surface. This pan, however, does not materially restrict the rooting depth of most plants. The soils in this group are low to moderate in natural fertility, contain little organic matter, and are very strongly acid. Infiltration and permeabilty are moderate except in the Eulonia soil, in which both are moderately slow. The available water capacity of the soils in this group is moderate to high. Tilth is generally good, and the root zone is thick.

These soils make up slightly more than 2 percent of the county, and about 65 percent of their acreage is cultivated. The soils generally are in small areas scattered throughout the county, but the Dunbar and Eulonia soils are mainly in the extreme eastern part.

The soils in this group are suited to many kinds of crops. Corn, tobacco, dwarf sorghum, oats, rye, and bahiagrass produce high yields under good management. Many nursery and truck crops also grow well.

The two main problems of management are erosion and wetness. Erosion is a moderate hazard on long, cultivated slopes. In many places excess water needs to be drained before most crops can be grown. Slopes susceptible to erosion should be cultivated on the contour, terraced, stripcropped, stubble mulched, and provided with cropping systems that include grasses and legumes. Drainage practices that may be needed include tiling, bedding, and digging open ditches. These practices can be used alone or in combination with the practices for control of erosion.

These soils respond well to large amounts of fertilizer and should be fertilized and limed according to the needs indicated by soil tests. During prolonged dry periods, the yields of high-value crops can be increased by irrigation. Pits to supply irrigation water are dug near the toe of slopes, and the water is used to irrigate not only these soils but also those nearby. Examples of suitable cropping systems are—

Row crops for 2 years and a small grain and a summer legume for 1 year.
Row crops for 2 years and perennial sod crops for 2 years or more.
Row crops planted every other year in sod, and the middles left undisturbed.

CAPABILITY UNIT IIe-4

In this capability unit are moderately well drained to excessively drained soils on uplands. Slopes range from 2 to 5 percent. The surface layer of these soils is chiefly very friable to loose loamy sand 6 to 18 inches thick. Small quartz grains and iron concretions are scattered on the surface and throughout the soils in varying amounts. The subsoil is chiefly friable to firm sandy clay or sandy clay loam. A small acreage is sandy throughout the profile. The soils are—

Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes.
Tifton loamy sand, thin solum, 2 to 5 percent slopes.

These soils are low to moderate in natural fertility, contain little organic matter, and are strongly acid to very strongly acid. Tilth generally is good. Except for the small acreage in Lakeland soils, infiltration and permeability are moderate, the available water capacity is moderate to moderately low, and the root zone is moderate to moderately thin. The Lakeland soil is rapidly permeable and has a low available water capacity and a thick root zone.

This group of soils amounts to slightly less than 1 percent of the county, and about 60 percent of the acreage is cultivated. The soils are suited to many kinds of crops. Suitable crops include corn, cotton, soybeans, peanuts, oats, rye, velvetbeans, lupine, bermudagrass, and bahiagrass.

Runoff in most areas of these soils is rapid enough to cause slight to moderate erosion. Since the root zone is generally moderate to moderately thin, further erosion can greatly reduce yields. Pebbles are especially numerous on the Tifton soil and tend to interfere with the harvest of peanuts.

Practices that help to control erosion in cultivated areas include tilling on the contour, terracing, and stripcropping. In addition, good tilth and a fairly adequate amount of organic matter can be maintained by using, 1 year in every 2 or 3 years, close-growing cover crops, soil-improving crops, or crops that leave a large amount of residue. Large amounts of fertilizer are required to maintain high yields, and lime is beneficial to some crops. The fertilizer and lime should be added in amounts indicated by soil tests.

Many of the natural drains on these soils provide good pond sites. Examples of suitable cropping systems are—

Row crops for 2 years and perennial sod crops for 2 years or more.
Strips of a row crop and of a small grain alternated each year for 2 years.

CAPABILITY UNIT IIw-2

This capability unit consists chiefly of moderately well drained and somewhat poorly drained soils with slopes of 0 to 2 percent. The surface layer ranges from very friable loamy sand to fine sandy loam and is 8 to 30 inches thick. It is underlain mainly by friable to firm sandy clay loam or sandy clay. The soils are—

Dunbar fine sandy loam, 0 to 2 percent slopes.
Goldsboro loamy sand, thick surface, 0 to 2 percent slopes.
Irvington loamy sand, thick surface, 0 to 2 percent slopes.
Lynchburg loamy sand, thick surface, 0 to 2 percent slopes.
Weston soils.

The Weston soils are poorly drained and have a very firm clay subsoil with prominent sand lenses. The soils in this group are low to moderate in natural fertility and organic matter and are very strongly acid throughout the profile. Water moves into and through them at a moderate rate. Their available water capacity is high. These soils are generally in good tilth and have a thick root zone. The Irvington soil, however, has a weakly cemented pan at a depth of about 25 inches, but the pan does not materially affect the rooting of most plants.

These soils make up slightly more than 7 percent of the county, and about 75 percent of their acreage is cultivated. Most of these soils are well distributed throughout the county. The Dunbar and Weston soils, however, are in small areas, mainly in the extreme eastern part. They are entirely wooded.

If the soils in this capability unit are adequately drained, they are among the most productive soils in the county. They are suited to tobacco (fig. 3), corn, dwarf sorghum, soybeans, oats, rye, pecan trees, and many truck and nursery crops. They also are suited to hay and pasture consisting of bahiagrass, Coastal bermudagrass, white clover, or lespedeza.

Some drainage is needed on all of the soils if they are cultivated, but less is needed on the Goldsboro and

Figure 3.—**Tobacco grown in a sod-based rotation on Goldsboro loamy sand, thick surface, 0 to 2 percent slopes.**

Irvington soils than on the Dunbar, Lynchburg, and Weston soils. Planting often is delayed by wetness, and crops are damaged in some years by heavy rains in spring and summer. By bedding the rows and by digging shallow ditches along the edges of fields, much of the excess water can be removed. Land leveling and shaping help to eliminate low spots. In addition to this earth-moving, the Lynchburg and Dunbar soils need a complete system of open ditches or of tile drainage. The Weston soils are difficult to drain because they are in slight depressions that have few outlets. The soils that have adequate outlets can be drained by open ditches.

On the soils in this group most crops respond to fertilization well enough to justify large additions of fertilizer. Lime benefits many crops. Crop residue that is worked into the soil helps to maintain organic matter and good tilth. The yields of high-value crops can be increased by irrigation in prolonged dry periods. Water for this purpose is supplied from many wells that have been dug in Goldsboro, Irvington, and Lynchburg soils. The water is used to irrigate not only these soils but also other soils that are nearby.

Row crops can be grown year after year on these soils, but they grow best in short cropping systems. Examples of suitable cropping systems are—

Row crops for 3 years and a small grain and a summer legume for 1 year.
Row crops for 3 years and sod crops for 2 years or more.
Row crops year after year and a winter legume in alternate years.

CAPABILITY UNIT IIw-3

Eulonia loamy fine sand, 0 to 2 percent slopes, is the only soil in this capability unit. It is a moderately well drained soil on low, level ridges or knolls, in the eastern part of the county. The surface layer is very friable loamy fine sand 6 to 18 inches thick. The subsoil is chiefly yellow, friable light sandy clay loam.

This soil is low to medium in natural fertility and in the content of organic matter. It is very strongly acid. Water enters the soil at a moderate rate and moves through it at a moderately slow rate. The available water capacity is moderately high. Tilth is generally good, and the root zone is favorable.

This soil amounts to less than 1 percent of the county and is mostly wooded. The soil is suited to most crops commonly grown in the county, but it is in areas of 10 acres or less and is surrounded by lower lying, poorly drained soils that are not suited to cultivation. Corn, oats, summer vegetables, and bahiagrass are the chief crops.

This soil is slightly wet, and in some years crops are damaged by heavy rains in spring and summer. Low spots can be eliminated by land leveling and shaping. Also, by bedding the rows and by digging shallow ditches along the edges of fields, much of the excess water can be removed.

The soil responds well to large amounts of fertilizer. Lime benefits many crops. Crop residue worked into the soil helps to maintain organic matter and good tilth. Examples of suitable cropping systems are—

Row crops for 3 years and a small grain and a summer legume for 1 year.
Row crops year after year and a winter legume in alternate years.
Row crops for 3 years and sod crops for 2 years or more.

CAPABILITY UNIT IIs-1

In this capability unit are level or very gently sloping, well-drained soils on uplands, chiefly in the western half of the county. Very friable loamy sand extends to a depth that ranges from 18 to 30 inches. Beneath this layer is friable sandy clay loam or sandy clay. The soils are—

Norfolk loamy sand, thick surface, 0 to 2 percent slopes.
Norfolk loamy sand, thick surface, 2 to 5 percent slopes.
Tifton loamy sand, thick surface, 0 to 2 percent slopes.
Tifton loamy sand, thick surface, 2 to 5 percent slopes.

Many iron concretions, as much as 1 inch in diameter, are on and in the Tifton soils, and a few concretions are in the Norfolk soils. The soils in this group are low in natural fertility, contain little organic matter, and are very strongly acid. Water moves into and through them at a moderate to moderately rapid rate, and the available water capacity is moderately low. Tilth is generally good, and the thick root zone can be worked within a wide range of moisture content.

This group of soils amounts to slightly more than 4 percent of the county, and about 80 percent of the acreage is cultivated. The soils are suited to many kinds of crops. Corn, cotton, peanuts, soybeans, and small grains such as oats and rye produce high yields under good management. Lupine, beggarweed, and velvetbeans are well suited legumes. Coastal bermudagrass and bahiagrass are among the better suited grasses. Pecan trees and many truck and nursery crops also are suited.

Because these soils have a thick, sandy surface layer and moderately low available water capacity, they are droughty. Many pebbles on the Tifton soils tend to interfere with the harvest of peanuts. If an adequate supply of water is available, the soils are well suited to sprinkler irrigation.

Additions of organic matter and large amounts of fertilizer are required to maintain high crop yields on these soils. Lime benefits some crops. Even under a good system of management, however, organic matter is depleted at a moderately rapid rate. Good tilth and a fairly adequate amount of organic matter can be main-

tained by using close-growing cover crops, soil-improving crops, or crops that produce a large amount of residue. Such crops should be used 1 year out of every 2 or 3 years.

In large, open fields the soils are subject to wind erosion (fig. 4). Wind erosion can be reduced by planting close-

Figure 4.—**Sandy material blown along fence row by wind. Capability unit IIs–1.**

growing and clean-tilled crops in alternate strips that extend at right angles to the prevailing winds. On long, very gently sloping fields, water erosion is a slight hazard. It can be effectively controlled by stripcropping, cultivating on the contour, providing vegetated waterways, and using well-fertilized, close-growing crops in the cropping system. Examples of suitable cropping systems are—

Row crops for 2 years and perennial sod crops for 2 years or more.
Strips of a row crop and of a small grain alternated each year for 2 years.
Row crops planted every other year in sod, and the middles left undisturbed.

CAPABILITY UNIT IIIe-4

In this capability unit are chiefly well-drained soils of the uplands. A small acreage is moderately well drained to excessively drained. Slopes range from 2 to 8 percent. The surface layer is loose loamy sand to friable sandy loam, 9 to 22 inches thick The subsoil is predominantly friable to firm sandy clay loam or sandy clay. A small acreage is sandy throughout the profile. The soils are—

Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, eroded.
Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes.
Tifton loamy sand, thin solum, 2 to 5 percent slopes, eroded.
Tifton loamy sand, thin solum, 5 to 8 percent slopes.

Many iron concretions, as much as 1 inch in diameter, are on and in the Tifton soils, and a few concretions are in the Gilead soils in places. The soils in this group are low to moderate in natural fertility, contain little organic matter, and are strongly acid or very strongly acid. They are generally in good tilth and can be worked within a wide range of moisture content. Except for the Lakeland soil, infiltration is moderate, the available water capacity is moderately low, and the root zone is moderate to moderately thin. The small acreage of Lakeland soil is rapidly permeable, is low in available water capacity, and has a thick root zone.

This group of soils amounts to slightly more than 2 percent of the county, and about 40 percent of the acreage is cultivated. The soils are well suited to bahiagrass and Coastal bermudagrass, are suited to oats and rye, and are fairly well suited to corn, cotton, soybeans, and dwarf sorghum.

In most areas of these soils, there is enough surface runoff to cause moderate to severe erosion (fig. 5). Since the depth of the root zone is generally moderate to moderately thin, further erosion can greatly reduce productivity. Erosion in cultivated fields can be controlled by cultivating on the contour, terracing, stripcropping, and grassing water-disposal areas. Close-growing crops, soil-improving crops, or crops that add a large amount of residue should be used at least 2 years out of every 3 or 4 to help maintain good tilth and a fairly adequate amount of organic matter. Mulch planting also helps to maintain organic matter and, at the same time, to improve the available water capacity and tilth.

These soils respond well to additions of fertilizer, and some crops benefit from additions of lime. Apply lime and fertilizer in amounts indicated by soil tests. Many of the natural drains on these soils provide good sites for ponds. Examples of suitable cropping systems are—

Row crops for 2 years and perennial sod crops for 3 years or more.
Cotton for 1 year and a small grain planted in undisturbed stubble for 1 year; a high residue producing row crop and a winter legume for 1 year.
Three years of contour stripcropping in which one-third of the strips are in row crops and two-thirds are in a small grain or a mulch-planted summer crop.

Figure 5.—**Erosion on unprotected soil in subclass IIIe.**

CAPABILITY UNIT IIIw-1

In this capability unit are moderately well drained and somewhat poorly drained, sandy soils on broad, low ridges. Sand extends from the surface to a depth of 30 inches or more. The soils are—

Klej sand, 0 to 2 percent slopes.
Klej sand, shallow, 0 to 2 percent slopes.
Ona sand.

These soils are strongly acid to extremely acid and are low in natural fertility and organic-matter content. Water

moves into and through them at a rapid rate, and the available water capacity is moderately high. The root zone is thick, and tilth is generally good. The water table fluctuates considerably; it is near the surface during rainy periods (fig. 6) and falls to a depth of 3 feet or more during droughts. For this reason, both drainage and irrigation may be required in a single growing season.

These soils occupy about 9 percent of the county. About 30 percent of their acreage is cultivated. The soils are limited in their suitability for crops, but if well managed, they produce satisfactory yields of tobacco, corn, oats, vegetables, and bahiagrass. Lime and fertilizer should be added in amounts indicated by soil tests. Returning crop residue to the soil and using soil-improving crops at least 1 year out of every 4 will help to maintain good tilth and the supply of organic matter. Examples of suitable cropping systems are—

Row crops for 3 years and a small grain and a summer legume for 1 year.
Row crops grown continuously and a winter legume or small grain in alternate years.

Figure 6.—**Crop damaged by heavy rains on soil in subclass IIIw.**

CAPABILITY UNIT IIIw-2

In this capability unit are mainly poorly drained and very poorly drained soils on lowland slopes of less than 2 percent. The surface layer ranges from friable loam to very friable fine sandy loam in texture and from black to grayish brown in color. In most places the subsoil is gray to brownish-yellow, firm or very firm clay, clay loam, or sandy clay. The soils are—

Bladen-Coxville-Weston complex.
Grady loam.
Portsmouth loam.
Wahee fine sandy loam.

The Wahee soil is moderately well drained and somewhat poorly drained. All the soils in this group are low to moderate in natural fertility and are extremely acid to strongly acid. The Grady and Portsmouth soils have a large amount of organic matter in the surface layer, but the rest of the soils contain little organic matter. Permeability and infiltration are slow to moderate. The available water capacity is high, and water stands on or within a few inches of the surface during most of the winter and the early part of spring. Tilth is fair to good. The thickness of the root zone is limited by the high water table.

These soils amount to less than 1 percent of the county and are mostly wooded. Adequately drained areas are suited to corn, soybeans, oats, truck crops, clover, and bahiagrass. Generally, water can be controlled by bedding the rows, by installing open ditches, and by leveling and shaping the fields. The Portsmouth and Grady soils are difficult to drain, however, because they are in slight depressions that have few outlets.

On the soils in this group, most crops respond to fertilizer well enough to justify adding large amounts. Lime also benefits many crops. Fertilizer and lime should be added in amounts indicated by soil tests. If drainage is adequate, these soils can be cultivated intensively and little special management is needed. By returning crop residue to the soil, and by using soil-improving crops at least 1 year out of every 4, good tilth and the supply of organic matter can be maintained. Examples of suitable cropping systems are—

Row crops for 3 years and sod crops for 2 years or more.
Row crops grown continuously with a reseeding legume; permit the legume to mature and produce a seed crop at least every third year.
Row crops grown year after year and a winter legume in alternate years.

CAPABILITY UNIT IIIs-1

In this capability unit are somewhat excessively drained soils with slopes ranging from 0 to 5 percent. Loose or very friable sand extends to a depth of 30 to 42 inches and is underlain by friable sandy loam or sandy clay loam. The soils are—

Lakeland sand, shallow, 0 to 2 percent slopes.
Lakeland sand, shallow, 2 to 5 percent slopes.

These soils are low in natural fertility, contain little organic matter, and are strongly acid. Water moves into and through them at a rapid rate, and the available water capacity is low. The root zone is thick, and tilth is generally good.

This group of soils amounts to slightly less than 1 percent of the county, and about half of the acreage is cultivated. The soils are fairly well suited to corn, cotton, soybeans, peanuts, watermelon, and lupine. They are well suited to bahiagrass and Coastal bermudagrass, but careful management is required for good yields.

Because these soils have a thick, sandy surface layer and low available water capacity, they are droughty. Large amounts of fertilizer and additions of organic matter are required to maintain good crop yields. Additions of lime benefit some crops. Even under a good system of management, organic matter is rapidly depleted in these soils. Mulch planting helps to maintain a fairly adequate amount of organic matter and, at the same time, improves the available water capacity and tilth. Also beneficial, if grown 2 years out of every 3 or 4, are close-growing cover crops, soil-improving crops, or crops that produce a large amount of residue. In large, open fields these soils are subject to wind erosion, but it can be reduced by planting close-growing and clean-tilled crops in alternate

strips at right angles to the prevailing wind. Examples of suitable cropping systems are—

Row crops for 1 year and bahiagrass or Coastal bermudagrass for 2 years or more.
Row crops for 2 years and bahiagrass or Coastal bermudagrass for 3 years or more.
Row crops for 1 year and a small grain and mulch-planted soybeans for 1 year.

CAPABILITY UNIT IIIs-3

The only soil in this group is Blanton sand, 0 to 2 percent slopes. It is a moderately well drained soil that occurs near Jesup on low sand ridges. The surface layer is loose, gray sand 4 to 9 inches thick. It is underlain by loose, light-gray sand that extends to a depth of 42 inches or more.

This soil is low in natural fertility, very low in organic-matter content, and very strongly acid. Water moves into and through it at a rapid rate, and the available water capacity is low. The root zone is thick, and tilth is generally good.

Less than 3,000 acres of this soil occurs in the county, and about 70 percent of this acreage is wooded. This sandy soil is limited in its suitability for crops, but if it is managed intensively, corn, tobacco, rye, watermelon, bahiagrass, and bermudagrass grow fairly well. Because the soil is sandy and is low in available water capacity, it is droughty. During periods of high rainfall, however, some low areas are waterlogged and crops may be damaged. Excess water can be removed by bedding the rows and by digging shallow ditches along the edges of fields.

Large amounts of fertilizer and additions of organic matter are required to obtain best crop yields. Additions of lime benefit some crops. Even under good management, organic matter is depleted rapidly in this soil. Tilth and a fairly adequate amount of organic matter can be maintained by using, 2 years out of every 3, close-growing cover crops, soil-improving crops, or crops that produce a large amount of residue.

Wind erosion is likely in large, open fields, but it can be reduced by planting close-growing and clean-tilled crops in alternate strips at right angles to the prevailing wind. The soil warms up early in spring and is suited to early maturing vegetables. Examples of suitable cropping systems are—

Grass sod or a small grain for 2 or 3 years and clean-tilled crops for 1 or 2 years.
Clean-tilled crops for 2 years and a small grain for 2 years.

CAPABILITY UNIT IVe-4

In this capability unit are moderately well drained to excessively drained soils on upland slopes of 5 to 8 percent. The surface layer of these soils is chiefly loose loamy sand 7 to 22 inches thick. It is underlain predominantly by friable to firm sandy clay loam or sandy clay. In several small areas sand extends throughout the profile. Iron concretions and quartz pebbles are common on and in these soils. The soils are—

Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes, eroded.
Tifton loamy sand, thin solum, 5 to 8 percent slopes, eroded.

These soils are low to moderate in natural fertility, contain little organic matter, and are strongly acid or very strongly acid. They are generally in fair to good tilth. All the soils except the Lakeland have moderate infiltration and permeability, moderately low available water capacity, and a moderate to moderately thin root zone. The small acreage of Lakeland soil is rapidly permeable, is low in available water capacity, and has a thick root zone.

These soils amount to less than 1 percent of the county, and most of their acreage is wooded. Because slopes are strong enough to cause rapid runoff and severe erosion, the soils are not suited to continuous cropping. Corn, cotton, and soybeans grow fairly well, however, and bahiagrass and Coastal bermudagrass are among the better suited forage plants.

If these soils are cultivated, erosion can be lessened by cultivating on the contour (fig. 7), terracing, strip-

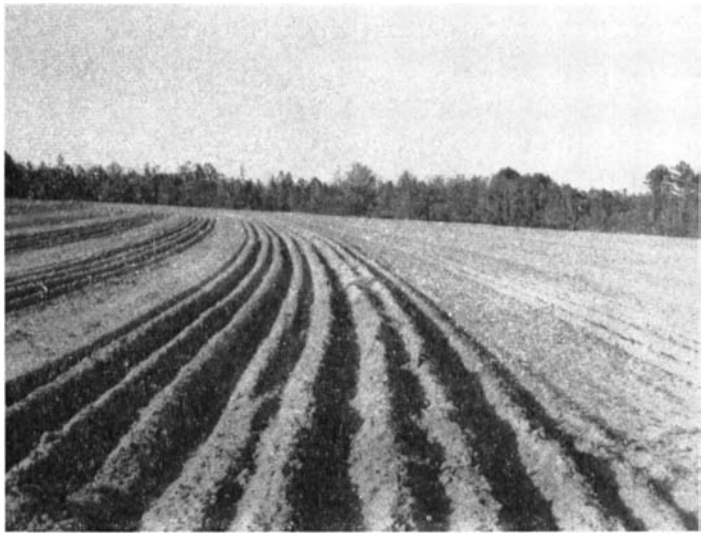

Figure 7.—**Contour cultivation of soil in subclass IVe.**

cropping, and grassing water-disposal areas. In addition, good tilth and a fairly adequate amount of organic matter can be maintained by growing, at least 3 years out of every 4, close-growing cover crops, soil-improving crops, or crops that produce a large amount of residue.

Crops on these soils respond well to additions of fertilizer, and some crops benefit from additions of lime. Lime and fertilizer should be applied in amounts indicated by soil tests.

Many drains throughout areas of these soils provide sites favorable for ponds. Examples of suitable cropping systems are—

Row crops for 1 year and permanent bahiagrass or another sod crop for 3 years or more.
Row crops planted in sod every fourth year, and the middles left undisturbed.

CAPABILITY UNIT IVw-4

In this capability unit are level, poorly drained and very poorly drained soils that have a surface layer of loose, very dark gray or black sand or loamy sand. The soils are—

Rains loamy sand, thick surface.
Wet alluvial land.

The underlying material in the Rains soil is sandy clay loam and in Wet alluvial land is sand. These soils are low in natural fertility, contain little organic matter,

and are very strongly acid. Water moves into and through them at a moderate rate, and the available water capacity is high. Tilth is generally good, and the root zone is favorable.

This group of soils amounts to less than 3 percent of the county and is almost entirely wooded. Because Wet alluvial land is subject to frequent changes through stream overflow, its use other than for trees is restricted. Before the Rains soil can be used for cultivated crops, it needs to be leveled, bedded, and drained intensively by open ditches or tile. Properly drained areas are fairly well suited to truck crops, corn, sugarcane, clover, and bahiagrass.

Large amounts of fertilizer and additions of organic matter are needed to maintain high crop yields, and lime benefits some crops. Lime and fertilizer should be added according to the needs of the crops. Examples of suitable cropping systems are—

Row crops for 3 years and sod crops for 2 years or more.
Row crops grown year after year and a winter legume in alternate years.

CAPABILITY UNIT IVs-1

In this capability unit are excessively drained soils on ridges with slopes of 0 to 8 percent. Loose sand extends to a depth of 42 inches or more. The soils are—

Lakeland sand, 0 to 5 percent slopes.
Lakeland sand, 5 to 8 percent slopes.

These soils are strongly acid, low in organic-matter content, and low to very low in natural fertility. Water moves rapidly into and through them, and their available water capacity is low. The root zone is thick, and the soils can be worked within a wide range of moisture content. These soils are loose when they are dry but are in good tilth when they are moist.

This group of soils amounts to somewhat less than 4 percent of the county and is mostly wooded. Because the soils are sandy and low in available water capacity, they are droughty. They warm up early in spring and are suited to vegetables that mature early. They are fairly well suited to varieties of corn that mature early and to sweetpotatoes, melons, rye, bahiagrass, and bermudagrass.

Large amounts of fertilizer and organic matter are required to maintain reasonably good crop yields. Some crops benefit from additions of lime. Applying fertilizer in split applications prevents excessive leaching. Even when these soils are well managed, organic matter is rapidly depleted. A fairly adequate amount of organic matter, as well as good tilth, can be maintained by growing, in 3 years out of every 4 or 5, close-growing cover crops, soil-improving crops, or crops that produce a large amount of residue.

In large open fields these soils are subject to wind erosion. Wind erosion can be reduced by alternating close-growing and clean-tilled crops in strips at right angles to the prevailing wind. Examples of suitable cropping systems are—

Row crops for 1 year and Coastal bermudagrass for 3 years or more.
Row crops for 1 year, a small grain for 1 year with stubble left until the next spring, and Coastal bermudagrass for 3 years or more.

CAPABILITY UNIT Vw-1

In this capability unit are level, poorly drained and very poorly drained soils on low flats and in depressions. The surface layer of these soils ranges from black to dark gray in color and from sandy loam to clay loam in texture. The underlying material is chiefly clay. The soils are—

Bayboro soils.
Bladen loam and clay loam.
Meggett soils.

At a depth of about 24 inches in the Meggett soils, many small calcareous pebbles are intermixed with the underlying clay. The soils in this group are low to moderate in natural fertility and low to high in content of organic matter. The Bayboro and Bladen soils are strongly acid, but the Meggett soils are generally medium acid in the surface layer and mildly alkaline or moderately alkaline in the subsoil. Water moves into and through the soils at a moderately slow to very slow rate, and the available water capacity is high. These soils should not be cultivated when they are wet. Tilth is fair to good, and the root zone is favorable for pasture plants, pine trees, and lowland hardwoods.

These soils are in the extreme eastern part of the county in an area totaling slightly more than 1,000 acres, all of which is wooded. Most of these soils are in depressions and have water standing at or on the surface for long periods. Adequately drained areas produce good yields of bahiagrass and white clover, but additions of lime and fertilizer are needed for best results. Pine trees are well suited except in ponded areas, where surface drainage is needed. Lowland hardwoods grow well in some of the very poorly drained areas and should not be cleared.

CAPABILITY UNIT Vw-2

This capability unit consists of level or nearly level, poorly drained and very poorly drained soils on broad flats and in drainageways. The surface layer of these soils ranges from dark gray to black and, in most places, is loose sand. In very poorly drained areas, however, the soils generally have a mucky surface layer. An underlying layer of sand extends to a depth of 30 inches or more. The soils are—

Plummer soils.
Rutlege sand.
St. Johns sand.

These soils are low in natural fertility, range from low to high in content of organic matter, and are very strongly acid to extremely acid. Although the loose, sandy surface layer favors rapid infiltration and permeability, water stands at or near the surface for long periods because these soils are in low positions. The available water capacity is high. Tilth is generally good.

The soils in this group amount to about 43 percent of the county and are in large scattered areas. Most of their acreage is wooded, but a few small areas are in pasture. Although these soils are well suited to pine trees, drainage is needed in ponded areas. Areas that are used for permanent pasture must also be drained intensively. Among the suitable pasture plants are oats, rye, bahiagrass, dallisgrass, and white clover. Lime and fertilizer should be added according to needs indicated by soil tests.

CAPABILITY UNIT Vw-4

Leon sand is the only soil in this capability unit. It is on slopes of less than 2 percent and is somewhat poorly drained and poorly drained. The surface layer is loose sand, 11 to 25 inches thick, and is underlain by firm sand that is weakly cemented with organic matter.

This soil is low in natural fertility, low in content of organic matter, and very strongly acid. Water enters the soil at a rapid rate, but it moves slowly through the organic pan. The available water capacity depends on the height of the water table, which fluctuates considerably. Tilth is generally good, but the root zone is shallow.

This soil makes up slightly less than 7.5 percent of the county. Sizable areas are distributed throughout the county, and almost all are wooded. The soil is not normally suited to cultivation, but bahiagrass and white clover grow fairly well under intensive management. This soil is wet, however, and pasture plants may be damaged in some years by heavy rains in spring and summer. The low spots can be eliminated by leveling. Shallow, open ditches along field boundaries generally will drain off excess water. The response to fertilizer and lime is good. These amendments should be added in amounts indicated by soil tests.

CAPABILITY UNIT VIe-2

In this capability unit are moderately well drained to excessively drained soils on uplands in the northwestern part of the county. Slopes range from 2 to 12 percent. The surface layer in much of the acreage is very dark grayish-brown to dark-gray, friable or very friable sandy loam. It is 4 to 12 inches thick and is underlain mainly by friable to firm, yellowish-red or yellow sandy clay loam, sandy clay, or clay. Several small areas are sandy throughout the profile. Quartz grains are common on and in the soils. The soils are—

Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes.
Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes, eroded.
Sunsweet soils, 5 to 12 percent slopes, eroded.
Susquehanna loamy sand, shallow, 2 to 8 percent slopes.

Many concretions of iron are on the surface of the Sunsweet soils and are present in lesser amounts throughout the profile.

The soils in this group are low in natural fertility, contain little organic matter, and are very strongly acid to strongly acid. Water moves into and through them at a moderate to slow rate. Runoff is rapid. In most of the acreage, the available water capacity is moderately low to low. These soils have a moderate to thin root zone and are generally fair to poor in tilth. A small acreage is rapidly permeable, has a low available water capacity, and has a thick root zone.

This group of soils amounts to less than 1 percent of the county and is mostly wooded. The soils are not suited to cultivation, because they are susceptible to severe erosion and have a moderate to shallow root zone. They are fairly well suited to bahiagrass, Coastal bermudagrass, and other pasture plants. If these soils are fertilized heavily, they quickly produce a dense stand of grass that keeps erosion to a minimum. Overgrazing should be avoided because of the constant erosion hazard. Apply fertilizer and lime according to needs indicated by soil tests. Numerous drains throughout these soils provide sites favorable for ponds.

CAPABILITY UNIT VIs-2

In this capability unit are excessively drained soils on high sand ridges. Slopes range from 2 to 12 percent. These soils have a dark-gray or gray surface layer that is 4 inches or less thick and is underlain by brownish-yellow sand or coarse sand. Sand or coarse sand extends from the surface to a depth of 4 feet or more. The soils are—

Lakeland sand, 8 to 12 percent slopes.
Lakeland coarse sand, deep, 2 to 5 percent slopes.

These soils are strongly acid to very strongly acid, are very low in natural fertility, and contain very little organic matter. Water moves into and through them at a very rapid rate, and the available water capacity is very low. These soils have a thick root zone and are very loose.

These soils occupy a total area of only 790 acres and are entirely in woods. Because the soils are sandy, they are extremely droughty and are not suited to cultivated crops. Suwanee bermudagrass and other drought-resistant grasses grow fairly well, but they require large amounts of fertilizer. The stands of trees are mixed, but principally turkey, scrub live, and bluejack oaks dominate. Also, there are a few scattered longleaf pines. In some places scrub oak is being controlled and slash pine planted.

CAPABILITY UNIT VIIe-2

In this capability unit are moderately well drained to excessively drained soils on uplands in the northwestern part of the county. Slopes range from 8 to 30 percent. The surface layer, in most places, is very dark grayish-brown to dark-gray, friable to very friable sandy loam 4 to 10 inches thick. The underlying layer is variable and ranges from sandy clay loam to clay. Varying amounts of quartz grains are on and in these soils. In small areas sand extends to a depth of several feet. The soils are—

Gilead, Lakeland, and Sawyer soils, 12 to 17 percent slopes, eroded.
Gilead, Lakeland, and Sawyer soils, 17 to 30 percent slopes, eroded.
Sunsweet soils, 8 to 17 percent slopes, severely eroded.

Many hard concretionary pebbles are on the surface of the Sunsweet soils, and some occur throughout the profile. The soils in this group are low in natural fertility, contain little organic matter, and are strongly acid to very strongly acid. They are generally in poor or fair tilth. Except for the Lakeland soil, the root zone is moderate to moderately thin, permeability and infiltration are slow to moderate, and the available water capacity is low to moderately low. The small acreage of Lakeland soil has a thick root zone, rapid permeability, and low available water capacity.

This group of soils amounts to less than 1 percent of the county and is all wooded. The soils are not suited to cultivated crops or to pasture, because they are steep, are susceptible to very severe erosion, have an unfavorable root zone, and are moderately low to low in available water capacity. Trees grow fairly well.

CAPABILITY UNIT VIIw-1

Only Swamp is in this capability unit. It is on the flood plains of rivers and creeks in nearly level, very poorly drained areas. It is subject to frequent flooding and is covered by water for long periods.

Swamp is low in natural fertility and is generally very strongly acid and medium to low in content of organic matter. The larger areas, however, contain a large amount of organic matter. During winter and spring flooding deposits fresh sediments.

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About 7 percent of Wayne County is Swamp, which is all wooded. The principal trees are cypress, swamp blackgum, sweetgum, red maple, ash, water oak, swamp chestnut oak, yellow-poplar, and willow. The management practiced encourages growth of these valuable hardwoods. Swamp can also be managed for hunting and fishing. It provides natural habitats for deer, squirrel, turkey, wild hog, and duck, and many lakes contain different kinds of fish.

CAPABILITY UNIT VIIs-1

This capability unit consists of excessively drained coarse sands on high ridges. Slopes range from 5 to 8 percent. These soils have a thin, gray coarse sand surface layer that is less than 4 inches thick. Below this is coarse sand that extends to a depth of 6 feet or more and is commonly brownish yellow. The soils are—

Lakeland coarse sand, deep, 5 to 8 percent slopes.
Lakewood coarse sand, 5 to 8 percent slopes.

In the Lakewood soil, white coarse sand extends from the surface to a depth of about 30 inches and is underlain by yellowish-brown coarse sand. The soils in this group are strongly acid to very strongly acid and are very low in natural fertility and organic-matter content. Water enters and moves through them rapidly, and the available water capacity is very low. These soils have a thick root zone and are very loose.

These soils, which occupy only 575 acres of the county, are in the southern part and are all in woods. Because the soils are coarse textured and excessively drained, they are not suited to cultivated crops or to pasture. Most of the acreage is in stands of turkey, bluejack, and scrub live oaks and a few longleaf pines. Generally, pine makes only fair growth on these soils, but efforts are being made to control the oak and to plant slash pine in some areas.

Estimated yields

Table 2 gives estimates of yields that can be expected on each soil in the county under two levels of management. In columns A are yields expected under the management commonly practiced in the county. In columns B are yields expected by research workers and by farmers who used improved management. The figures are based on records of yields on individual farms, on yields obtained in long-term experiments, and on estimates made by agronomists who have had experience with the crops and with the soils.

Estimated yields have not been given for certain crops on some of the soils. Dashes have been entered in the column instead of figures if the expected yields are so low, or the management needed is so exacting, that it is not practical to grow the crop on the soil indicated.

The estimates are for soils that have not been irrigated. Because flooding varies greatly from place to place, losses from flooding were not considered in estimating yields for soils subject to flooding.

To obtain yields in columns B, a higher level of management is needed than that required for the yields in columns A. The farmer can obtain the yields in columns B if he (1) chooses carefully the kind of crop to be grown and the cropping system to be used, (2) prepares a good seedbed, (3) uses proper methods of planting and seeding, (4) inoculates legumes, (5) plants high-yielding varieties and hybrids, (6) seeds at recommended rates and at proper times, (7) controls weeds, (8) controls excess water through drainage, (9) provides vegetated waterways, (10) tills on the contour or builds terraces where needed, and (11) adds liberal amounts of lime and fertilizer where required.

TABLE 2.—*Estimated average acre yields of the principal crops under two levels of management*

[Yields in columns A are expected under the management commonly practiced; yields in columns B are expected under improved management. All yields are for nonirrigated soils. Absence of yield indicates crop is not suited to the soil specified or is not commonly grown on it]

Soil	Corn		To-bacco (flue-cured)	Cotton (lint)		Peanuts (runner)		Oats		Pasture	
										Coastal ber-muda-grass	Bahia-grass
	A	B	B	A	B	A	B	A	B	B	B
	Bu.	*Bu.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Bu.*	*Bu.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]
Bayboro soils											280
Bladen loam and clay loam											280
Bladen-Coxville-Weston complex	40	70						35	65		360
Blanton sand, 0 to 2 percent slopes	20	60	2,000	125	350	500	800	35	60	380	260
Dunbar fine sandy loam, 0 to 2 prcent slopes	45	90	2,500	400	650	600	1,000	40	75	370	420
Dunbar fine sandy loam, 2 to 5 percent slopes	45	90	2,500	400	650	600	1,000	40	80	370	420
Eulonia loamy fine sand, 0 to 2 percent slopes	45	90	2,500	400	650	600	1,000	40	80	370	420
Eulonia loamy fine sand, 2 to 5 percent slopes	45	90	2,500	400	650	600	1,000	40	80	370	420
Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes	30	55	1,600	250	500	650	1,800	40	80	365	300
Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, eroded	20	50	1,500	200	350	600	1,700	30	50	350	280
Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes	20	50	1,400	200	350	600	1,700	30	50	320	250
Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes, eroded	15	45	900	150	375	550	1,300	15	45	320	250
Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes	15	45	900	150	375	550	1,300	15	45	320	250
Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes, eroded										240	180

TABLE 2.—*Estimated average acre yields of the principal crops under two levels of management*—Continued

Soil	Corn		Tobacco (flue-cured)	Cotton (lint)		Peanuts (runner)		Oats		Pasture	
										Coastal bermudagrass	Bahiagrass
	A	B	B	A	B	A	B	A	B	B	B
	Bu.	*Bu.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Bu.*	*Bu.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]
Gilead, Lakeland, and Sawyer soils, 12 to 17 percent slopes, eroded										240	180
Gilead, Lakeland, and Sawyer soils, 17 to 30 percent slopes, eroded											
Goldsboro loamy sand, thick surface, 0 to 2 percent slopes	40	90	2,500	400	650	600	1,200	45	85	420	420
Goldsboro loamy sand, thick surface, 2 to 5 percent slopes	40	90	2,500	400	650	600	1,200	45	85	420	420
Grady loam	25	60						30	50		360
Irvington loamy sand, thick surface, 0 to 2 percent slopes	40	90	2,500	400	650	600	1,200	45	85	420	420
Irvington loamy sand, thick surface, 2 to 5 percent slopes	40	90	2,500	400	650	600	1,200	45	85	420	420
Klej sand, 0 to 2 percent slopes	30	70	2,200	125	350			30	70	300	380
Klej sand, shallow, 0 to 2 percent slopes	30	80	2,600	125	350	500	800	30	80	300	380
Lakeland sand, 0 to 5 percent slopes	20	40	1,300	225	400	500	1,000	25	45	325	200
Lakeland sand, 5 to 8 percent slopes	15	35	1,200	150	375	500	900	20	40	300	180
Lakeland sand, 8 to 12 percent slopes										280	160
Lakeland coarse sand, deep, 2 to 5 percent slopes										250	
Lakeland coarse sand, deep, 5 to 8 percent slopes											
Lakeland sand, shallow, 0 to 2 percent slopes	30	65	1,700	250	450	600	1,500	30	70	350	300
Lakeland sand, shallow, 2 to 5 percent slopes	25	60	1,600	250	450	600	1,500	25	65	350	300
Lakewood coarse sand, 5 to 8 percent slopes											
Leon sand										340	280
Lynchburg loamy sand, thick surface, 0 to 2 percent slopes	40	80	2,200	150	375	500	700	30	70	300	420
Lynchburg loamy sand, 2 to 5 percent slopes	40	80	2,200	150	375	500	700	30	70	300	420
Meggett soils											380
Norfolk loamy sand, 0 to 2 percent slopes	50	95	2,500	450	900	700	2,000	50	95	420	400
Norfolk loamy sand, 2 to 5 percent slopes	50	95	2,500	450	900	700	1,800	50	90	420	400
Norfolk loamy sand, thick surface, 0 to 2 percent slopes	40	90	2,000	375	750	600	1,700	40	80	400	380
Norfolk loamy sand, thick surface, 2 to 5 percent slopes	40	90	2,000	375	750	600	1,700	40	80	400	380
Ona sand	35	70	1,900	125	350			25	70	300	380
Plummer soils											370
Portsmouth loam	20	50									400
Rains loamy sand, thick surface	20	40									400
Rutlege sand											350
St. Johns sand											380
Sunsweet soils, 5 to 12 percent slopes, eroded										180	
Sunsweet soils, 8 to 17 percent slopes, severely eroded											
Susquehanna loamy sand, shallow, 2 to 8 percent slopes	15	40	1,200			400	1,000	15	35	270	300
Swamp											
Tifton loamy sand, 0 to 2 percent slopes	50	100	2,500	450	900	750	2,000	55	100	420	380
Tifton loamy sand, 2 to 5 percent slopes	50	90	2,200	450	900	700	1,800	50	95	420	380
Tifton loamy sand, 2 to 5 percent slopes, eroded	45	90	2,200	400	800	700	1,800	40	85	420	380
Tifton loamy sand, thick surface, 0 to 2 percent slopes	40	90	2,000	375	800	700	1,800	40	80	400	350
Tifton loamy sand, thick surface, 2 to 5 percent slopes	40	90	2,000	375	800	700	1,800	40	80	400	340
Tifton loamy sand, thin solum, 2 to 5 percent slopes	30	70	1,800	300	600	650	1,700	40	80	400	340
Tifton loamy sand, thin solum, 2 to 5 percent slopes, eroded	20	50	1,700	250	500	600	1,600	35	70	375	320
Tifton loamy sand, thin solum, 5 to 8 percent slopes	20	50	1,700	250	500	600	1,600	35	70	375	320
Tifton loamy sand, thin solum, 5 to 8 percent slopes, eroded	15	40	1,000	150	400	550	1,400	30	60	350	300
Wahee fine sandy loam	25	60	1,200	150	400	500	700	40	65		380
Weston soils	25	65	1,500					20	45		380
Wet alluvial land											200

[1] Cow-acre-days is the number of days 1 acre will support 1 animal unit (1 cow, steer, or horse; 5 hogs; or 7 sheep or goats) without injury to the pasture.

Although soil tests should be made to determine appropriate rates of fertilization, rates of fertilization and of planting were assumed in estimating the yields listed in columns B. By fertilizing and planting at about the rates assumed, which are those suggested in the following paragraphs, you can expect to obtain the yields in columns B.

Corn.—Soils that produce per acre 70 bushels or more of corn, as indicated in column B of table 2, require per acre 70 to 100 pounds of nitrogen and 80 to 90 pounds of phosphoric acid (P_2O_5) and of potash (K_2O). Enough seeds should be used to insure 10,000 to 15,000 plants per acre. Soils that produce per acre 35 to 70 bushels of corn require per acre 35 to 70 pounds of nitrogen and 45 to 80 pounds of phosphoric acid and of potash. Enough seeds should be used to insure 8,000 to 10,000 plants per acre. If the estimated yield is less than 35 bushels per acre, the

soil is poorly suited to corn and should be used for some other crop.

All residue from the corn should be returned to the soil and a winter cover crop planted.

Tobacco (flue-cured).—Each soil for which a yield of tobacco is listed in table 2 requires per acre 800 to 2,000 pounds of 3–9–9 [2] or 4–8–12 fertilizer at planting and a side dressing of 200 pounds of 6–3–24 fertilizer. The planting rate is 6,000 to 8,000 plants per acre.

Flue-cured tobacco generally is grown only on excellent soils, and only improved management is used. This management includes an effective program to control nematodes and insects.

Cotton.—Soils that produce per acre 500 pounds or more of cotton lint, as indicated in column B of table 2, require per acre 500 to 800 pounds of 6–12–12 fertilizer at planting and a side dressing of 50 to 80 pounds of nitrogen. The planting rate is 25,000 to 40,000 plants per acre if the crop is to be harvested by hand. If a mechanical harvester is to be used, the planting rate is 40,000 to 60,000 plants per acre. Soils that produce 300 to 500 pounds of cotton lint per acre require per acre 300 to 500 pounds of 6–12–12 fertilizer at planting and 30 to 50 pounds of nitrogen as a side dressing. The planting rate is 20,000 to 35,000 plants per acre if the crop is to be harvested by hand. If a mechanical harvester is to be used, the planting rate is 35,000 to 50,000 plants per acre.

Improved management should include an effective program to control insects.

Peanuts (runner).—Soils that produce per acre 1,300 pounds or more of peanuts require per acre 300 to 500 pounds of 4–12–12 or 5–10–15 fertilizer, a side dressing of 400 to 500 pounds of gypsum, and 50 to 60 pounds of shelled seed. Soils that produce 800 to 1,300 pounds of peanuts require per acre 200 to 300 pounds of 4–12–12 or 5–10–15 fertilizer at planting, a side dressing of 300 to 400 pounds of gypsum, and 40 to 50 pounds of shelled seed.

Peanuts respond less than most crops to direct applications of fertilizer. Apparently, they recover plant nutrients that are left in the soil by other crops.

Oats.—Soils that produce per acre 70 bushels or more of oats require per acre 300 to 500 pounds of 6–12–12 fertilizer at planting and 50 to 80 pounds of nitrogen as a side dressing. For drilled seed the planting rate is 2 bushels per acre, and for broadcast seed it is 3 bushels per acre. Soils that produce per acre 35 to 70 bushels of oats require per acre 200 to 400 pounds of 6–12–12 fertilizer at planting and 35 to 50 pounds of nitrogen as a topdressing. For drilled seed the planting rate is 2 bushels per acre, and for broadcast seed it is 3 bushels per acre. On all soils used for oats that is to be grazed, the planting rate should be doubled.

Coastal bermudagrass.—All soils for which yields of Coastal bermudagrass are listed in column B of table 2 require per acre 400 to 500 pounds of 5–10–15 fertilizer at planting and a topdressing of 90 to 100 pounds of nitrogen in split applications the first year. For maintenance an annual application of 500 pounds of 5–10–15 fertilizer is required, and 100 to 200 pounds of nitrogen in split applications. The planting rate is 14,000 sprigs to the acre. Mowing to a height of 6 inches or less is required for the best grazing.

[2] Percentages of nitrogen, phosphate, and potash.

Bahiagrass.—All soils for which yields of bahiagrass are listed in column B of table 2 require 400 to 500 pounds of 6–12–12 fertilizer at planting, and a topdressing of 60 to 100 pounds of nitrogen in split applications. For maintenance an annual application of 500 pounds of 5–10–15 fertilizer is required, and 60 to 100 pounds of nitrogen in split applications. The planting rate is 15 pounds of broadcast seed per acre. Mowing is required to control excessive growth and weeds.

Uses of Soils as Woodland [3]

Wayne County was once forested with stands of loblolly and longleaf pines on the uplands and with stands of slash pine, gum, cypress, oak, hickory, yellow-poplar, maple, and other mixed hardwoods along streambanks. These virgin stands first provided material for the naval stores industry and later were cleared by logging for the lumber industry. After the virgin stands were depleted, second-growth stands provided materials for these industries.

The present forests on uplands consist of sparse to thick stands of longleaf and slash pines and of hardwoods; on the lowlands are hardwoods of poor quality. About 85 percent of the total land area in Wayne County is woodland. Of this acreage, 65 percent is owned by companies and 35 percent is owned by farmers and other individuals. The county has a large pulp mill that makes high-grade cellulose and a large plant that makes poles. Producing naval stores and processing trees for pulp and paper are the major forestry industries in Wayne County.

Woodland suitability groups of soils

Management of woodland can be planned more effectively if soils are grouped according to those characteristics that affect the growth of trees and the management of stands. For this reason, the soils of Wayne County have been placed in eight woodland suitability groups. Each group consists of soils that have about the same suitability for wood crops, require about the same management, and have about the same potential productivity.

Listed in table 3, and later described in the text, are the eight woodland suitability groups in this county. For each suitability group are listed the average site index of slash, loblolly, and longleaf pines and the annual growth of these trees in cords per acre. Also shown are some of the hazards and limitations that affect the management of each group. The terms used in this table require explanation.

The potential productivity of a soil for a specified kind of tree is expressed as a *site index.* A site index for a given soil is the height, in feet, that a specified kind of tree growing on that soil will reach in 50 years. The site index of a soil is determined mainly by the capacity of the soil to provide moisture and growing space for tree roots. A site index in table 3 is an average for all the soils in the suitability group. The site index for any one soil in the group may be somewhat different from the average.

[3] NORMAN E. SANDS, forester, Soil Conservation Service, assisted in writing this subsection.

TABLE 3.—*Productivity, hazards, and management of woodland suitability groups*

Woodland suitability groups [1]	Average productivity			Hazards and management
	Commercial trees	Site index [2]	Annual growth [3]	
			Cords per acre	
Group 1: Deep, well-drained soils with a moderately permeable subsoil: Norfolk loamy sand (NhA, NhB) Norfolk loamy sand, thick surface (NfA, NfB) Tifton loamy sand, thick surface (TrA, TrB) Tifton loamy sand (TqA, TqB, TqB2) Tifton loamy sand, thin solum (TvB, TvB2, TvC, TvC2)	Slash pine Loblolly pine Longleaf pine	86 83 70	1. 6 1. 3 . 9	Removing or destroying culls and scrub trees may be necessary to allow desirable seedlings to grow.
Group 2: Deep, moderately well drained to poorly drained soils with moderately slow to slow permeability in the subsoil: Bladen-Coxville-Weston complex (BkA) Dunbar fine sandy loam (DmA, DmB) Goldsboro loamy sand, thick surface (GnA, GnB) Irvington loamy sand, thick surface (IhA, IhB) Lynchburg loamy sand, thick surface (LzA) Lynchburg loamy sand (LvB) Wahee fine sandy loam (Waf)	Slash pine Loblolly pine Longleaf pine	90 90 75	1. 7 1. 5 1. 0	Removing or destroying culls and scrub trees may be necessary to allow desirable seedlings to grow.
Group 3: Moderately deep soils with a fine-textured subsoil: Eulonia loamy fine sand (EtA, EtB) Gilead, Lakeland, and Sawyer soils (GCB, GCB2, GCC, GCC2, GCD, GCD2, GCE2, GCF2)	Slash pine Loblolly pine Longleaf pine	86 86 71	. 6 1. 4 . 9	Equipment limitation is severe on slopes greater than 8 percent. On the Sawyer soils, equipment limitation is severe because these soils are wet more than 3 months each year. Special practices are needed for regeneration of longleaf pine.
Group 4: Poorly drained or very poorly drained soils with a subsoil ranging from sand to clay: Bladen loam and clay loam (BjA) Bayboro soils (BhA) Grady loam (Gad) Meggett soils (MBA) Plummer soils (PeA) Portsmouth loam (Por) Rains loamy sand, thick surface (RfA) Rutlege sand (RkA) St. Johns sand (Stj) Weston soils (WIA) Wet alluvial land (Avp)	Slash pine Loblolly pine Longleaf pine	88 96 87	1. 6 1. 7 1. 4	In waterlogged areas, control of water is needed for regeneration and growth of pine. Removing or destroying culls and scrub trees may be necessary to allow desirable seedlings to grow. Frequent and extensive overflows limit regeneration and management operations.
Group 5: Deep, coarse-textured, somewhat excessively drained soils with rapid permeability: Lakeland sand, shallow (LAA, LAB)	Slash pine Loblolly pine Longleaf pine	82 96 71	1. 2 1. 7 . 9	Removing or destroying culls and scrub trees may be necessary to allow desirable seedlings to grow.
Group 6: Deep to very deep, coarse-textured, excessively drained soils: Lakeland coarse sand, deep (LwB, LwC) Lakeland sand (LpB, LpC, LpD) Lakewood coarse sand (LBC)	Slash pine Loblolly pine Longleaf pine	75 85 62	1. 4 1. 4 . 7	Seedling mortality is severe, and natural regeneration cannot be relied on. Removing or destroying culls and scrub trees may be necessary to insure growth of planted trees.
Group 7: Soils with poorly developed profile characteristics and a heavy sandy clay loam to clay subsoil: Sunsweet soils (SmD2, SmE3) Susquehanna loamy sand, shallow (SoC)	Slash pine Loblolly pine Longleaf pine	60 75 55	1. 0 1. 2 . 5	Seedling mortality is moderate to severe, and natural reseeding of pine cannot be relied on. Removing or destroying culls and scrub trees may be necessary.
Group 8: Moderately well drained to poorly drained soils with moderate to rapid permeability: Blanton sand (BnA) Klej sand (KhA) Klej sand, shallow (KiA) Leon sand (LrA) Ona sand (ObA)	Slash pine Loblolly pine Longleaf pine	80 80 [4] 70	1. 5 1. 3 . 9	Plant competition is severe on the Klej and Leon soils. Because of competition and other factors, natural reseeding cannot be relied on. During long droughts in summer, growth of trees may be slowed on the Leon soils.

[1] Swamp was not assigned to a woodland suitability group, because data available were insufficient and were impractical to evaluate.

[2] Average height, in feet, of dominant trees in stand at 50 years of age.

[3] Average yearly growth per acre, in cords, for trees 35 years old in fully stocked stands that are not managed intensively. Adapted from USDA Misc. Pub. No. 50 (*7*), and USDA Tech. Bull. 560 (*4*).

[4] Site index is 65 on Leon sand.

Each woodland suitability group has, in varying degree, limitations that affect its management. In the descriptions of the suitability groups, some of these limitations are expressed in the relative terms slight, moderate, or severe. The relative term expresses the degree of limitation, as explained in the following paragraphs.

PLANT COMPETITION: When a woodland is disturbed by fire, cutting, grazing, or some other means, undesirable brush, trees, and plants may invade. The invading growth competes with the desirable trees and hinders their establishment and growth.

Competition is *slight* if unwanted plants present no special problem. It is *moderate* if the invaders delay but do not prevent the establishment of a normal, fully stocked stand. Where plant competition is moderate, seedbed preparation is generally not needed and simple methods can be used to prevent undesirable plants from invading. Competition is *severe* if trees cannot regenerate naturally. Where competition is severe, carefully prepare the site and use management that includes controlled burning, spraying with chemicals, and girdling.

SEEDLING MORTALITY: Even when healthy seedlings of a suitable tree are correctly planted or occur naturally in adequate numbers, some of them will not survive if characteristics of the soil are unfavorable.

Mortality is *slight* if not more than 25 percent of the planted seedlings die, or if trees ordinarily regenerate naturally in places where there are enough seeds. It is *moderate* if 25 to 50 percent of the seedlings die, or if trees do not regenerate naturally in numbers needed for adequate restocking. In some places, replanting to fill open spaces will be necessary. Mortality is *severe* if more than 50 percent of the planted seedlings die, or if trees do not ordinarily reseed naturally in places where there are enough seeds. If mortality is severe, plant seedlings where the seeds do not grow, prepare special seedbeds, and use good methods of planting to insure a full stand of trees.

EQUIPMENT LIMITATION: Drainage, slope, stoniness, soil texture, or other soil characteristics may restrict or prohibit the use of ordinary equipment in pruning, thinning, harvesting, or other woodland management. Different soils may require different kinds of equipment, methods of operation, or seasons when equipment may be used.

Limitation is *slight* if there are no restrictions on the type of equipment or on the time of year that the equipment can be used. It is *moderate* if slopes are moderately steep, if heavy equipment is restricted by wetness in winter and early in spring, or if the use of equipment damages the tree roots to some extent. Equipment limitation is *severe* if many types of equipment cannot be used, if the time equipment cannot be used is more than 3 months a year, and if the use of equipment severely damages the roots of trees and the structure and stability of the soil. Limitation is severe on moderately steep and steep soils that are stony and have rock outcrops. It is also severe on wet bottom lands and low terraces in winter or early in spring.

EROSION HAZARD: Woodland can be protected from erosion by choosing the kinds of trees, by adjusting the rotation age and cutting cycles, by using special techniques in management, and by carefully constructing and maintaining roads, trails, and landings.

Erosion hazard is rated according to the risk of erosion on well-managed woodland that is not protected by special practices. It is *slight* where only a small loss of soil is expected. Generally, erosion is slight if slopes range from 0 to 2 percent and runoff is slow or very slow. The erosion hazard is *moderate* where a moderate loss of soil is expected if runoff is not controlled and the vegetative cover is not adequate for protection. It is *severe* where steep slopes, rapid runoff, slow infiltration and permeability, and past erosion make the soil susceptible to severe erosion.

WINDTHROW HAZARD: Soil characteristics affect the development of tree roots and how firmly the roots anchor the tree and enable it to resist the force of the wind. Root development may be prevented by a high water table or by an impermeable layer. The protection of surrounding trees also affects windthrow hazard. Knowing the degree of this hazard is important when choosing trees for planting and when planning release cuttings or harvest cuttings.

The windthrow hazard is *slight* if roots hold the tree firmly against a normal wind. Individual trees are likely to remain standing if protective trees on all sides are removed. The hazard is *moderate* if the roots develop enough to hold the tree firmly, except when the soil is excessively wet and the wind velocity is very high. It is *severe* if rooting is not deep enough to give adequate stability. Individual trees are likely to be blown over if they are released on all sides.

In the following pages the eight woodland suitability groups of this county are described and the soils in each group are listed.

Because not enough data were available, Swamp was not placed in a woodland suitability group.

WOODLAND SUITABILITY GROUP 1

In this group are deep, well-drained soils with a moderately permeable subsoil. The soils are—

NhA	Norfolk loamy sand, 0 to 2 percent slopes.
NhB	Norfolk loamy sand, 2 to 5 percent slopes.
NfA	Norfolk loamy sand, thick surface, 0 to 2 percent slopes.
NfB	Norfolk loamy sand, thick surface, 2 to 5 percent slopes.
TqA	Tifton loamy sand, 0 to 2 percent slopes.
TqB	Tifton loamy sand, 2 to 5 percent slopes.
TqB2	Tifton loamy sand, 2 to 5 percent slopes, eroded.
TrA	Tifton loamy sand, thick surface, 0 to 2 percent slopes.
TrB	Tifton loamy sand, thick surface, 2 to 5 percent slopes.
TvB	Tifton loamy sand, thin solum, 2 to 5 percent slopes.
TvB2	Tifton loamy sand, thin solum, 2 to 5 percent slopes, eroded.
TvC	Tifton loamy sand, thin solum, 5 to 8 percent slopes.
TvC2	Tifton loamy sand, thin solum, 5 to 8 percent slopes, eroded.

After the overstory is removed, plant competition is not serious enough to prevent adequate restocking of trees. It may be desirable, however, to prepare special seedbeds and to use other simple techniques of management.

Seedling mortality on these soils is slight. The equipment limitation is slight on slopes less than 5 percent and is moderate on slopes greater than 5 percent. Erosion and windthrow are only slight hazards.

WOODLAND SUITABILITY GROUP 2

In this group are deep, moderately well drained to poorly drained soils with moderately slow to slow permeability in the subsoil. The soils are—

BkA	Bladen-Coxville-Weston complex.
DmA	Dunbar fine sandy loam, 0 to 2 percent slopes.
DmB	Dunbar fine sandy loam, 2 to 5 percent slopes.
GnA	Goldsboro loamy sand, thick surface, 0 to 2 percent slopes.
GnB	Goldsboro loamy sand, thick surface, 2 to 5 percent slopes.
IhA	Irvington loamy sand, thick surface, 0 to 2 percent slopes.
IhB	Irvington loamy sand, thick surface, 2 to 5 percent slopes.
LvB	Lynchburg loamy sand, 2 to 5 percent slopes.
LzA	Lynchburg loamy sand, thick surface, 0 to 2 percent slopes.
Waf	Wahee fine sandy loam.

Plant competition is moderate, but ordinarily it does not prevent preferred trees from establishing an adequate stand. Initial growth may be slowed, however, and the establishment of stands delayed. Seedling mortality is slight.

Equipment limitation, caused mainly by wetness, is moderate. Wet periods of as long as 3 months may be expected. If equipment is used during these wet periods, structure and stability of the soils may be damaged and tree roots injured.

Erosion, windthrow, and drought are only slight hazards.

WOODLAND SUITABILITY GROUP 3

In this group are moderately deep soils that have a fine-textured subsoil. The soils are—

EtA	Eulonia loamy fine sand, 0 to 2 percent slopes.
EtB	Eulonia loamy fine sand, 2 to 5 percent slopes.
GCB	Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes.
GCB2	Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, eroded.
GCC	Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes.
GCC2	Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes, eroded.
GCD	Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes.
GCD2	Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes, eroded.
GCE2	Gilead, Lakeland, and Sawyer soils, 12 to 17 percent slopes, eroded.
GCF2	Gilead, Lakeland, and Sawyer soils, 17 to 30 percent slopes, eroded.

Plant competition is moderate, but ordinarily it does not prevent preferred trees from establishing an adequate stand. If plant competition is controlled, mortality of seedlings during the first 2 years is slight for loblolly and slash pines and is moderate for longleaf pine. Ordinarily, loblolly pine regenerates naturally if woodland management is suitable. Longleaf pine does not always regenerate naturally, and if this tree is preferred, special treatment may be needed to insure adequate and immediate restocking. Even in places where longleaf pine grows best, some replanting is needed to fill in openings. After the first planting, satisfactory restocking can be expected in 4 years out of 5 for loblolly and slash pines and in 2 years out of 5 for longleaf pine.

The equipment limitation on this group of soils is moderate to severe. Gilead, Lakeland, and Sawyer soils with slopes less than 8 percent have moderate equipment limitations, and those soils with slopes greater than 8 percent have severe equipment limitations. The limitation is severe on the Eulonia soils because they are wet. To prevent serious damage to tree roots, soil structure, and stability, the use of equipment must be restricted on this group of soils for more than 3 months each year.

The erosion hazard on the Gilead, Lakeland, and Sawyer soils is moderate to severe. On these sloping soils care is needed in locating and maintaining access roads so that erosion is controlled.

Windthrow is a moderate hazard on this group of soils. Fewer trees will blow down during high winds if the density of the stand is controlled when thinning, during release cutting, or in the final or regeneration cut. The drought hazard is slight because these soils are generally wet.

WOODLAND SUITABILITY GROUP 4

The soils in this group are poorly drained or very poorly drained and have a subsoil ranging from sand to clay. These soils are on the lower part of the landscape, and much of their acreage is subject to overflow. They are—

BhA	Bayboro soils.
BjA	Bladen loam and clay loam.
Gad	Grady loam.
MBA	Meggett soils.
PeA	Plummer soils.
Por	Portsmouth loam.
RfA	Rains loamy sand, thick surface.
RkA	Rutlege sand.
Stj	St. Johns sand.
WlA	Weston soils.
Avp	Wet alluvial land.

In waterlogged areas, the site index for slash pine is much lower than the 88 average listed for these soils in table 3 and the stands of this tree are seldom fully stocked. Cypress grows in areas where water remains on the surface for extended periods.

After the overstory is removed, plant competition is severe and adequate stands of preferred trees do not restock naturally. Special management that is needed includes controlled burning, water control, site preparation, and control of unwanted trees. Tree planting, and replanting as needed, is necessary to insure well-stocked stands of desirable trees.

Even where plant competition is controlled, mortality of seedlings is severe during the first few years, mainly because drainage is poor and flooding is likely. Although trees do not regenerate naturally in sufficient numbers, satisfactory stands from an initial planting can be expected in about 2 years out of 5. In some places water control is necessary before stands can be established.

The equipment limitation is severe because these soils are wet and are likely to be flooded. Damage to soil structure and stability, as well as injury to tree roots, may result if equipment is used during wet periods. For efficient management of these soils, access roads and adequate ditches for drainage are commonly required.

The erosion and windthrow hazards are slight on these soils.

WOODLAND SUITABILITY GROUP 5

The soils in this group are deep, coarse textured, somewhat excessively drained, and rapidly permeable. They are—

LAA	Lakeland sand, shallow, 0 to 2 percent slopes.
LAB	Lakeland sand, shallow, 2 to 5 percent slopes.

Plant competition is moderate on these soils. Brush and other plants compete after the overstory is removed or after openings are made in the canopy.

The expected seedling mortality of planted longleaf pine is moderate to severe. Mortality is slight for the other kinds of pine. The equipment limitation, erosion, and windthrow are only slight hazards.

WOODLAND SUITABILITY GROUP 6

In this group are deep to very deep, coarse-textured soils that are excessively drained. The soils are—

LwB	Lakeland coarse sand, deep, 2 to 5 percent slopes.
LwC	Lakeland coarse sand, deep, 5 to 8 percent slopes.
LpB	Lakeland sand, 0 to 5 percent slopes.
LpC	Lakeland sand, 5 to 8 percent slopes.
LpD	Lakeland sand, 8 to 12 percent slopes.
LBC	Lakewood coarse sand, 5 to 8 percent slopes.

Because these soils are droughty, plant competition is slight. Seedling mortality during the first few years is severe, and trees do not regenerate naturally in adequate numbers. Even if plant competition is completely controlled, satisfactory restocking after the initial planting can be expected in only 1 or 2 years out of 5. Immediate and adequate restocking can be insured by planting trees and replanting open spaces, by specially preparing the seedbed, by using superior planting techniques, and by planting stock of high quality.

Erosion and windthrow are slight hazards on these soils. The drought hazard is severe.

WOODLAND SUITABILITY GROUP 7

The soils in this group have poorly developed profile characteristics and a heavy sandy clay loam to clay subsoil. They are—

SmD2	Sunsweet soils, 5 to 12 percent slopes, eroded.
SmE3	Sunsweet soils, 8 to 17 percent slopes, severely eroded.
SoC	Susquehanna loamy sand, shallow, 2 to 8 percent slopes.

Plant competition is moderate on these soils. It may retard growth, but it does not ordinarily prevent preferred trees from establishing adequate stands.

Seedling mortality is moderate to severe, and pine trees do not regenerate naturally. Planting is needed, and some replanting may be required the first year or two to fill in openings where seedlings have died.

The equipment limitation, erosion, and windthrow are moderate hazards. Because the soils are slowly permeable, droughtiness is slight.

WOODLAND SUITABILITY GROUP 8

In this group are moderately well drained to poorly drained soils with moderate to rapid permeability. The soils are—

BnA	Blanton sand, 0 to 2 percent slopes.
KhA	Klej sand, 0 to 2 percent slopes.
KiA	Klej sand, shallow, 0 to 2 percent slopes.
LrA	Leon sand.
ObA	Ona sand.

Plant competition is moderate to severe on these soils, but it ordinarily does not prevent preferred trees from establishing adequate stands. In some areas of the Klej and Leon soils, however, competition is severe in open, natural stands of longleaf pine. Preparing a site for the longleaf pine may be necessary on those soils before an adequate stand can be established.

Equipment limitation, caused by wetness, is moderate. Wet periods as long as 3 months are to be expected, and if equipment is used during those periods, the structure and stability of the soils are likely to be damaged and tree roots injured.

Erosion and windthrow are slight hazards. Because these soils are generally wet, drought is not a serious hazard. Nevertheless, the Leon soil may not supply enough moisture for trees during long, dry periods in summer.

Protective practices

Grazing, fire, insects, and disease damage or destroy trees and reduce the amount of wood products harvested.

Protection from grazing: Wooded areas ought to be protected from heavy grazing, for heavy grazing not only destroys seedlings and damages trees but also makes the soil more likely to erode and less likely to take in and store water for trees. If grazing is not controlled, it is particularly harmful on steep or eroded woodland. Where some grazing is necessary, the livestock should be distributed so that not more than 40 percent of the low-growing cover is eaten. Grazing is less harmful to woodland in April, May, and June than it is at other times because more forage is available in those months. Cattle generally damage trees less than other grazing animals.

Protection from fire: Fire kills seedlings, young trees, and some of the larger trees. It also destroys humus and litter and thereby increases the hazard of erosion. Firebreaks help protect wooded areas by checking or stopping fires. A firebreak may be a road in the woods, or a plowed or disked fire lane. At a firebreak, the firefighters can start a backfire, which is a fire set to counter an advancing fire. Firebreaks should tie into streams, ponds, public roads, utility rights-of-way, or other barriers.

Protection from insects and diseases: Serious losses from diseases and insects have not occurred on woodland in Wayne County. To avoid damage from insects, cuttings should be made in fall or winter. Log the woodland carefully so that the trees left standing are not scarred and made more susceptible to disease.

Wildlife and Fish [4]

The soils of Wayne County produce food and cover for many kinds of wildlife. Many bobwhite and dove live in the large cultivated areas in the northwestern and southwestern parts of the county. Common throughout the county are rabbit, squirrel, fox, opossum, raccoon, skunk, and many nongame birds. Deer and wild turkey find good habitats in the large, moist woodland in the southeastern half of the county and in the wide, swampy area along the Altamaha River. Bear, wild duck, mink, otter, and fish are along and in this river and, to some extent, are in several other parts of the county.

Food and cover needed by wildlife

The feeding habits of wildlife differ greatly. Some eat only insects and other small animals, some eat only plants, and some eat a combination of the two. In the following paragraphs is a summary of needs for most of the important animals and fish in the county.

[4] VERN E. DAVISON, biologist, Soil Conservation Service, assisted in writing this subsection.

Bobwhite (quail).—Choice foods for bobwhite are acorns, blackberries, browntop millet, bullgrass, wild black cherries, corn, cowpeas, dewberries, Florida beggarweed, flowering dogwood, annual and bicolor lespedezas, peanuts, pecans, pine seeds, common ragweed, soybeans, sweetgum, and tickclover. These birds also eat many insects. The food must be close to vegetation that can protect the wildlife from predators, extreme heat, and adverse weather.

Deer.—Choice foods for deer are acorns, bahiagrass, clovers, chufa, corn, cowpeas, greenbrier, annual and bicolor lespedezas, oats, saw-palmetto, soybeans, rye, and yaupon. A wooded area of 500 acres or more generally provides enough cover for deer.

Dove, mourning.—Among choice foods for doves are browntop millet, bullgrass, corn, Japanese millet, pine seeds, common ragweed, and sweetgum seeds. Doves do not eat insects, green leaves, or fruits. They drink water daily.

Duck.—Choice foods for ducks are acorns, browntop millet, Japanese millet, chufa, corn, and smartweed seeds. Although ducks occasionally eat acorns and corn on dry land, their food generally needs to be flooded.

Rabbit.—For cover, rabbits need a thicket of blackberry, plum, or other plants. Available in most parts of the county are clovers, winter grasses, and other succulent plants.

Squirrel.—Choice foods for squirrels are acorns, blackgum seeds, black cherry, chinkapin, chufa, corn, flowering dogwood, magnolia, peanuts, pecans, pine seeds, cypress, and tupelo fruit.

Turkey, wild.—Turkeys survive only in large wooded areas that generally occupy 2,000 acres or more. They need surface water for daily drinking and often roost in large trees over or near water. Choice foods are insects, acorns, bahiagrass seeds, bullgrass, blackberries, dewberries, browntop millet, chufa, clover leaves, corn, cowpeas, peanuts, flowering dogwood, gallberry, wild grapes, oats, pecans, pine seeds, rye, and soybeans.

Nongame birds.—Nongame birds vary greatly in the foods they choose. Several kinds eat nothing but insects, a few eat insects, nuts, and fruits; and others eat all of these foods.

Fish.—The principal game fish in this county are bluegill, bass, and channel catfish. The choice foods of bluegill are mostly aquatic worms, insects, and larvae. Bass and channel catfish feed chiefly on small fish. The amount of fish food produced is related directly to the fertility of the water. This fertility is affected by the soils of the watershed and somewhat by the soils at the bottom of ponds. Because the soils are low in fertility and are acid, most ponds need to be fertilized and limed to produce enough green, microscopic algae to feed the worms and, thereby, the fish.

Wildlife suitability groups

The soils in Wayne County have been placed in seven groups according to their suitability as habitats for specified kinds of wildlife. The seven groups are described in the following pages. Table 4 rates the suitability of specified plants to the soils of each group. It also rates the suitability of each of these plants as foods for birds and animals that live in the county or stop there when migrating. The plants listed in table 4 furnish some of the cover needed. Additional cover is generally abundant or excessive in this humid climate, or it can be readily grown where needed.

WILDLIFE SUITABILITY GROUP 1

In this group are poorly drained and very poorly drained soils on broad, low flats and in drainageways and depressions. The soils range from sands to clay loams. They are—

Bayboro soils.
Bladen loam and clay loam.
Bladen-Coxville-Weston complex.
Grady loam.
Meggett soils.
Plummer soils.
Portsmouth loam.
Rains loamy sand, thick surface.
Rutlege sand.
Swamp.
Weston soils.
Wet alluvial land.

These soils amount to about half of the county and are almost entirely wooded. Water covers most of their acreage for short periods and covers Swamp during the wet months. This excess water limits use to water-tolerant plants. Among the plants that furnish choice food for wildlife are blackgum, bald cypress, Japanese millet, oak, smartweed, sweetbay magnolia, tupelo, and pine. In most areas low dikes can be constructed that confine water and make ponds for duck. Most of the acreage is in large tracts that are suitable for deer and turkey. In some of these tracts, however, waterholes are needed for deer and turkey and for squirrel as well. Wildlife cover is plentiful.

WILDLIFE SUITABILITY GROUP 2

In this group are somewhat poorly drained and poorly drained soils on low, broad ridges. Slopes range from 0 to 2 percent. The surface layer is sand, 8 to 24 inches thick, and the subsoil is a hardpan of sand cemented with organic matter. This pan holds water at or near the surface during wet periods, but in dry periods, it prevents moisture from rising into the surface layer and makes the soils droughty. The soils are—

Leon sand.
St. Johns sand.

These soils amount to about 40,000 acres in the county and are almost entirely wooded. Among the plants that produce choice food for wildlife are pine, waxmyrtle, and gallberry. Because of their position and sandy nature, these soils cannot be flooded effectively for duck fields.

WILDLIFE SUITABILITY GROUP 3

This group of soils is on low flats and is moderately well drained and somewhat poorly drained. Slopes range from 0 to 5 percent, though most of the slopes are less than 2 percent. The soils are sands in which the sand ranges from 30 inches to several feet in thickness and is easily worked. The water table fluctuates considerably; it is near the surface during wet seasons but drops to a depth of 3 feet or more during prolonged droughts. The soils are—

Blanton sand, 0 to 2 percent slopes.
Klej sand, 0 to 2 percent slopes.
Klej sand, shallow, 0 to 2 percent slopes.
Ona sand.

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TABLE 4.—*Suitability of plants for wildlife groups*

[Absence of entry indicates plant may be eaten in only

Plant	Suitability of plants for wildlife groups—						
	1	2	3	4	5	6	7
Bahiagrass	Poorly suited	Poorly suited	Suited	Suited	Marginal	Suited	Poorly suited
Beggarweed, Florida	Poorly suited	Poorly suited	Suited	Suited	Poorly suited	Marginal	Poorly suited
Blackberry	Poorly suited	Poorly suited	Marginal	Suited	Marginal	Suited	Poorly suited
Blackgum	Suited	Marginal	Poorly suited	Poorly suited	Poorly suited	Poorly suited	Poorly suited
Browntop millet	Poorly suited	Poorly suited	Suited	Suited	Poorly suited	Suited	Poorly suited
Cherry, black	Poorly suited	Poorly suited	Marginal	Suited	Suited	Suited	Poorly suited
Chinkapin	Poorly suited	Poorly suited	Suited	Suited	Poorly suited	Poorly suited	Poorly suited
Chufa	Poorly suited	Poorly suited	Suited	Suited	Marginal	Suited	Poorly suited
Clover, crimson	Poorly suited	Poorly suited	Marginal	Suited	Marginal	Suited	Poorly suited
Clover, white	Poorly suited	Poorly suited	Suited	Suited	Poorly suited	Poorly suited	Poorly suited
Corn	Poorly suited	Poorly suited	Suited	Suited	Marginal	Suited	Poorly suited
Cowpeas	Poorly suited	Poorly suited	Marginal	Suited	Marginal	Suited	Poorly suited
Cypress, bald	Suited	Poorly suited	Poorly suited	Poorly suited	Poorly suited	Poorly suited	Poorly suited
Dewberry	Poorly suited	Poorly suited	Marginal	Suited	Marginal	Suited	Poorly suited
Dogwood, flowering	Poorly suited	Poorly suited	Poorly suited	Marginal	Suited	Suited	Marginal
Gallberry	Marginal	Suited	Suited	Suited	Poorly suited	Poorly suited	Poorly suited
Grape, wild	Poorly suited	Poorly suited	Suited	Suited	Marginal	Marginal	Poorly suited
Greenbrier	Suited	Poorly suited	Suited	Suited	Marginal	Marginal	Poorly suited
Japanese millet	Suited	Poorly suited	Marginal	Marginal	Poorly suited	Poorly suited	Poorly suited
Lespedeza, annual	Poorly suited	Poorly suited	Suited	Suited	Marginal	Marginal	Poorly suited
Lespedeza, bicolor	Poorly suited	Poorly suited	Poorly suited	Marginal	Marginal	Marginal	Poorly suited
Magnolia	Suited	Marginal	Suited	Suited	Suited	Suited	Marginal
Oak [7]	Suited	Marginal	Suited	Suited	Suited	Suited	Marginal
Oats	Poorly suited	Poorly suited	Marginal	Suited	Suited	Suited	Poorly suited
Paspalum, bull	Poorly suited	Poorly suited	Suited	Suited	Poorly suited	Poorly suited	Poorly suited
Peanuts	Poorly suited	Poorly suited	Marginal	Suited	Marginal	Suited	Poorly suited
Pecans	Poorly suited	Poorly suited	Suited	Suited	Suited	Suited	Poorly suited
Pine	Suited	Suited	Suited	Suited	Suited	Suited	Marginal
Ragweed, common	Poorly suited	Poorly suited	Suited	Suited	Marginal	Marginal	Poorly suited
Rye	Poorly suited	Poorly suited	Marginal	Suited	Suited	Suited	Marginal
Saw-palmetto	Poorly suited	Marginal	Suited	Marginal	Marginal	Marginal	Poorly suited
Smartweed	Suited	Poorly suited	Suited	Marginal	Poorly suited	Marginal	Marginal
Soybeans	Poorly suited	Poorly suited	Suited	Suited	Marginal	Suited	Poorly suited
Sweetgum	Marginal	Poorly suited	Poorly suited	Marginal	Poorly suited	Poorly suited	Poorly suited
Tickclover (beggarlice)	Poorly suited	Poorly suited	Poorly suited	Suited	Marginal	Marginal	Poorly suited
Tupelo	Suited	Poorly suited	Poorly suited	Poorly suited	Poorly suited	Poorly suited	Poorly suited
Waxmyrtle	Poorly suited	Suited	Suited	Suited	Poorly suited	Poorly suited	Poorly suited
Yaupon	Poorly suited	Poorly suited	Marginal	Marginal	Poorly suited	Poorly suited	Poorly suited

[1] Bluebird, catbird, mockingbird, and waxwing.
[2] Blackbird, cardinal, meadowlark, sparrow, and towhee.
[3] Chickadee, grackle, bluejay, titmouse, and woodpecker.
[4] Foliage is choice food.
[5] Foliage is fair food.
[6] Seed is choice food.

These soils are extensive in the county and are mostly wooded. Sizable areas, however, are cultivated or pastured. The soils are well suited to many plants that provide choice food for several kinds of wildlife. Some large, wooded areas are suitable for deer and turkey, but waterholes are needed in some places for these animals and for squirrel. Protective cover for wildlife is plentiful. Because these soils are sandy, they generally cannot be flooded to make duck fields.

WILDLIFE SUITABILITY GROUP 4

In this group are somewhat poorly drained and moderately well drained soils on slopes of 0 to 5 percent. The surface layer is chiefly loamy sand, 12 to 30 inches thick. The subsoil is friable, moderately permeable sandy clay loam or sandy clay. These soils are easily worked and have a moderate to high available water capacity. They are—

Dunbar fine sandy loam, 0 to 2 percent slopes.
Dunbar fine sandy loam, 2 to 5 percent slopes.
Eulonia loamy fine sand, 0 to 2 percent slopes.
Eulonia loamy fine sand, 2 to 5 percent slopes.
Goldsboro loamy sand, thick surface, 0 to 2 percent slopes.
Goldsboro loamy sand, thick surface, 2 to 5 percent slopes.
Irvington loamy sand, thick surface, 0 to 2 percent slopes.
Irvington loamy sand, thick surface, 2 to 5 percent slopes.
Lynchburg loamy sand, thick surface, 0 to 2 percent slopes.
Lynchburg loamy sand, 2 to 5 percent slopes.
Wahee fine sandy loam.

These soils are scattered throughout the county and are mainly cultivated. They are suited to many plants that provide choice food for several kinds of wildlife. Natural drains on these soils provide favorable sites for ponds that are easy to establish and maintain.

of soils and as food for kinds of wildlife

small amounts, or that its use by wildlife is unknown]

Part of plant eaten	Suitability of plants as food for—									
	Bobwhite	Deer	Dove	Duck	Rabbit	Squirrel	Turkey	Nongame birds that feed on—		
								Fruits [1]	Grain and seeds [2]	Nuts and acorns [3]
Seed	Fair	Fair [4]	Fair				Choice		Fair	
Seed	Choice	(4)								
Fruit	Choice	(5)				Fair	Choice	Choice		
Fruit	Fair					Choice	Choice	Choice		Fair.
Seed	Choice		Choice	Choice			Choice		Choice	
Fruit	Choice					Choice	Fair	Choice		Fair.
Nut		Fair				Choice	Choice			Choice.
Nut		Choice		Choice		Choice	Choice			Fair.
All	Fair	Choice			Choice		Choice			
All	Fair	Choice			Choice		Choice			
Seed	Choice	Choice	Choice	Choice	Choice	Choice	Choice		Choice	Fair.
Seed	Choice	Choice	Fair		Choice		Choice			
Seed						Choice	Fair			
Fruit	Choice	(5)				Fair	Choice	Choice		
Fruit	Choice					Choice	Choice	Choice		
Fruit	Fair						Choice	Fair		
Fruit						Fair	Choice	Choice		
All		Choice			Choice					
Seed	Choice		Choice	Choice			Fair		Choice	
Seed	Choice	(4)			(5)		Fair			
All	(6)	Choice			Fair					
Fruit						Choice	Fair	Choice		
Acorns	Choice	Choice		Choice		Choice	Choice			Choice.
All	(8)	Choice	(8)		Choice		Choice		(6)	
Seed	Choice		Choice	Fair			Choice		Choice	
Nuts	Fair		Fair			Choice	Choice			Choice.
Nuts	Choice	Fair				Choice	Choice			Choice.
Seed	Choice		Choice			Choice	Choice		Choice	Choice.
Seed	Choice		Choice						Choice	
All	Choice	Choice			Choice		Choice			
All		Choice								
Seed	Fair			Choice						
Seed	Fair	(4)	Fair	Fair	(4)		Choice			
Seed	Choice		Choice			Fair	Fair		Choice	
Seed	Choice						Fair			
Fruit						Choice		Choice		
Fruit	Fair						Fair			Fair.
All		Choice								

[7] These oaks are black, blackjack, bluejack, myrtle, post, sawtooth, Shumard, southern red, swamp chestnut, water, white, and willow.

[8] Seed is choice food.

WILDLIFE SUITABILITY GROUP 5

This group consists of moderately well drained to excessively drained soils on uplands. Slopes range from 2 to 8 percent. The surface layer of these soils is loamy sand or sandy loam, 6 to 26 inches thick, and the subsoil is sandy clay loam to clay. These soils have a moderate to low available water capacity. Tilth is generally good. The soils are—

Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes.
Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, eroded.
Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes.
Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes, eroded.
Susquehanna loamy sand, shallow, 2 to 8 percent slopes.
Tifton loamy sand, thin solum, 2 to 5 percent slopes.
Tifton loamy sand, thin solum, 2 to 5 percent slopes, eroded.
Tifton loamy sand, thin solum, 5 to 8 percent slopes.
Tifton loamy sand, thin solum, 5 to 8 percent slopes, eroded.

These soils are mainly in the western half of the county. Most of their acreage has been cultivated, but some has reverted to forest. The soils are suited to a number of plants that supply choice food for several kinds of wildlife. These plants can be established and maintained if moderate practices are used to help control erosion.

WILDLIFE SUITABILITY GROUP 6

In this group are well-drained and somewhat excessively drained soils on uplands. Slopes range from 0 to 5 percent. The surface layer of these soils is loamy sand or sand, and the subsoil is moderately permeable heavy sandy loam to sandy clay. Tilth is good, but the available water capacity is moderate to low. The soils are—

Lakeland sand, shallow, 0 to 2 percent slopes.
Lakeland sand, shallow, 2 to 5 percent slopes.
Norfolk loamy sand, 0 to 2 percent slopes.

Norfolk loamy sand, 2 to 5 percent slopes.
Norfolk loamy sand, thick surface, 0 to 2 percent slopes.
Norfolk loamy sand, thick surface, 2 to 5 percent slopes.
Tifton loamy sand, 0 to 2 percent slopes.
Tifton loamy sand, 2 to 5 percent slopes.
Tifton loamy sand, 2 to 5 percent slopes eroded.
Tifton loamy sand, thick surface, 0 to 2 percent slopes.
Tifton loamy sand, thick surface, 2 to 5 percent slopes.

The surface layer of the Tifton and Norfolk soils is 8 to 30 inches thick. That of the shallow Lakeland sands is only 3 to 10 inches thick.

The soils in this group are fairly extensive in the western half of the county and are mostly cultivated. They are suited to many plants that provide choice food for several kinds of wildlife. Good sites for ponds are in many of the natural drains.

WILDLIFE SUITABILITY GROUP 7

In Wayne County the soils of this group have a small total acreage, all of which is wooded. Slopes range from 0 to 30 percent. Although cover on these soils is adequate for wildlife, food is scarce because the available water capacity is moderately low to very low and natural fertility is low to very low. Supplemental food can be produced more economically on the adjacent soils. Drinking water also must be provided in areas nearby. The soils are—

Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes.
Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes, eroded.
Gilead, Lakeland, and Sawyer soils, 12 to 17 percent slopes, eroded.
Gilead, Lakeland, and Sawyer soils, 17 to 30 percent slopes, eroded.
Lakewood coarse sand, 5 to 8 percent slopes.
Lakeland coarse sand, deep, 2 to 5 percent slopes.
Lakeland coarse sand, deep, 5 to 8 percent slopes.
Lakeland sand, 0 to 5 percent slopes.
Lakeland sand, 5 to 8 percent slopes.
Lakeland sand, 8 to 12 percent slopes.
Sunsweet soils, 5 to 12 percent slopes, eroded.
Sunsweet soils, 8 to 17 percent slopes, severely eroded.

Planning for wildlife

The work unit conservationist of the Soil Conservation Service maintains up-to-date technical guides on each important kind of wildlife or fish, as well as on plants suitable for food or cover. He can help farmers plan ways to increase the kinds and numbers of wildlife on their farms by suggesting practices that are suitable for the various soils and bodies of water. Thus, any landowner can obtain practical help in planning and establishing good habitats for the wildlife suited to his land and ponds for fish.

Engineering Uses of Soils [5]

Soil engineering is well established today. It is, in a broad sense, a subdivision of structural engineering because it deals with soil as the foundation material upon which structures rest, or with soil that is used as a structural material. To the engineer, soils are natural materials that cover the earth in great variety and that may have widely different engineering properties within a single project. Some soil properties are of special interest to engineers because they affect the construction and maintenance of roads, airports, pipelines, and building foundations, and of structures for drainage, water storage, erosion control, and sewage disposal. Among the soil properties that the engineer considers most important are permeability to water, strength against shearing, compaction characteristics, soil drainage, shrink-swell potential, grain size, plasticity, and pH. Also important are topography and the depth to the water table and to bedrock.

Generally, soils are used in the locality and in the condition they are found. A large part of soil engineering consists of locating the various soils, of determining their engineering properties, of correlating those properties with the requirements of the job, and of selecting the best possible material for each job.

This soil survey report contains information about the soils in Wayne County that will help engineers. Emphasized in this subsection are the soil properties that affect agricultural practices and structures, especially those properties affecting irrigation, farm ponds, structures that control and conserve soil and water, and similar structures.

The information in this report will help engineers to (1) make soil and land-use studies that will aid in selecting and developing industrial, business, residential, and recreational sites; (2) select locations for highways, pipelines, and airports; (3) locate sand and gravel for use in construction; (4) correlate pavement performance with types of soil and, thus, develop information that will be useful in designing and maintaining the pavements; (5) determine the suitability of soils for cross-country movement of vehicles and construction equipment; and (6) supplement information obtained from other published maps and reports and from aerial photographs, for the purpose of making soil maps and reports that can be used readily by engineers.

This report will not eliminate the need for sampling and testing soils for the design and construction of specific engineering works. The interpretations in the report should be used primarily in planning more detailed field investigations to determine the condition of soil material in place at the proposed site for engineering work.

At many construction sites, the soils vary greatly within the depth of the proposed excavation and within short distances. The maps, soil descriptions, and other information in this report can best be used in planning the detailed investigations necessary at the construction site. These maps and descriptions make it possible to take only a minimum number of soil samples for laboratory testing. After the soils have been tested and their behavior, in place, has been observed under varying conditions, the engineer should be able to anticipate, to some extent, the properties of individual soils, wherever they are mapped.

In addition to information in this subsection, much additional information can be found in the text of the report. The engineer should refer to the section "How Soils Are Mapped and Classified" and to the section "Formation and Classification of Soils." He will need also to refer to the section "Descriptions of the Soils," which describes each soil in the county.

Some of the terms used by the soil scientist may not be familiar to the engineer; other terms, though familiar, have special meanings in soil science. Most of the terms used in the tables, and other special terms used in the report, are defined in the Glossary.

This subsection contains four tables. Table 5 gives test data for soils of two series that are extensive in the

[5] L. W. ROBINSON, civil engineer, Soil Conservation Service, assisted in writing this subsection.

county, and table 6, for five additional soil series. Table 7 gives a brief description of each soil in the county and estimates physical properties significant in engineering. In table 8 are interpretations of the engineering properties of the soils.

Engineering classification of soils

Most highway engineers classify soil material according to the system approved by the American Association of State Highway Officials (*1*).[6] In this system soil material is classified in seven principal groups. The groups range from A–1, which consists of gravelly soils of high bearing capacity, to A–7, which consists of clay soils having low strength when wet. Within each group the relative engineering value of the soil material is indicated by a group index number. These indexes range from 0 for the best material to 20 for the poorest. The group index number is shown in parentheses following the soil group symbol. (See table 5.)

Some engineers prefer the Unified soil classification system (*8*). In this system soil material is identified as coarse grained (eight classes), fine grained (six classes), or highly organic.

The classification of a soil material by either the AASHO or the Unified system identifies the material according to textural and plasticity characteristics. This classification permits the engineer to make a rapid appraisal of a soil material by comparing it with more familiar soils that have the same classification.

Soil test data

Soil samples from the principal soil types of two extensive soil series were tested in accordance with standard procedures so that the soil material could be evaluated for engineering purposes. The test data are given in table 5. (See page 44.) Because the samples tested were obtained from a depth of less than 6 feet, they do not represent materials that are encountered in earthwork at a greater depth. Table 6 (see page 46) gives test data obtained from soil samples of five other soil series. These data were determined by the same methods as were the data in table 5.

In the moisture-density (compaction) test, soil material is compacted into a mold several times with a constant compactive effort, each time at a successively higher moisture content. The density, unit weight, of the soil material increases as the moisture content increases, until the optimum moisture content is reached. After that, the density decreases with increase in moisture content. The highest density obtained in the compaction test is termed maximum dry density. Moisture-density data are important in earthwork because, as a rule, optimum stability is obtained if the soil is compacted to about the maximum density when it is at approximately the optimum moisture content.

The volume changes listed indicate the amount of shrinkage and swell obtained for samples prepared at optimum moisture content and then subjected to drying and wetting. The sum of these two values gives the total volume change that can occur in a particular soil.

The results of the mechanical analyses may be used to determine the relative proportions of the different size particles. The clay-content data obtained by the hydrometer method should not be used in naming textural classes of soil.

The test to determine liquid limit and plastic limit measures the effect of water on the consistence of the soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from a semisolid to a plastic state. As the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the material passes from a semisolid to a plastic state. The liquid limit is the moisture content at which the material passes from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and plastic limit. It indicates the range of moisture content within which a soil material is in a plastic condition.

Table 5 gives the AASHO and Unified classification for each soil sample. These classifications, which are based on the liquid limit, the plasticity index, and the data obtained by mechanical analysis, are briefly described in the subsection "Engineering Classification of Soils." Table 6 gives the State Highway Department of Georgia classification for soil used in an embankment or as subgrade, as well as the Unified and AASHO classifications for the soils tested.

Engineering descriptions and physical properties

Table 7, beginning on p. 48, briefly describes each soil in the county and classifies the materials in its major horizons according to the U.S. Department of Agriculture, the Unified, and the AASHO systems of classification. The physical properties of these horizons were estimated on the basis of test data, field observations, and experience. These estimates apply only to the soils of Wayne County.

An explanation of some of the headings in table 7 may be helpful. The depth from the surface is generally that of the boundaries of the horizons of the profiles described in the section "Formation and Classification of Soils."

Permeability, or the rate that water moves through soil material, was estimated for uncompacted material. The estimates are based on a study of structure and consistence of the soil and on field observations. Only a small amount of laboratory data was available.

Available water capacity, listed in inches per inch of soil depth, is the approximate amount of capillary water in the soil when it is wet to field capacity. It is the amount of water held in the soil between ⅓ and 15 atmospheres tension. If the soil is at permanent wilting point, this amount of water will wet it to a depth of 1 inch. Laboratory data were available for only a few soils in Wayne County; for the other soils, estimates are based on data from similar soils.

The shrink-swell potential is an indication of the volume change to be expected with a change in moisture content. It is estimated primarily on the basis of the amount and type of clay a soil contains. In general, soils classified as CH and A–7 have high shrink-swell potential. Those having low shrink-swell potential are clean sands and gravel (single-grain structure) and those having small amounts of nonplastic to slightly plastic fines, as well as most other nonplastic to slightly plastic soil materials.

Nearly all of the soils in Wayne County are strongly acid to extremely acid. The Meggett soils, however, are medium acid in their surface layer and are mildly alkaline or moderately alkaline in their subsoil.

[6] Italic numbers in parentheses refer to Literature Cited, p. 71.

TABLE 5.—*Engineering test data* [1] *for soil samples*

Soil type and location	Georgia report No. S60-Ga-151	Depth	Horizon	Moisture-density [2]		Mechanical analyses [3]		
				Maximum density	Optimum moisture content	Volume change [5]		
						Shrinkage	Swell	Total volume change
		Inches		*Lb. per cu. ft.*	*Percent*	*Percent*	*Percent*	*Percent*
Irvington loamy sand, thick surface phase:								
2 miles SE. of Odum and 1 mile N. of Bethel Church. (Modal)	1-1	0-5	A1	112	10	1.8	2.6	4.4
	1-3	10-25	B1	121	9	2.9	4.8	7.7
	1-5	31-46+	C	116	13	1.7	2.3	4.0
4 miles W. of Jesup and 1 mile N. of Flint Branch Church. (Variation to Klej)	2-1	0-4	A1	114	8	3.9	1.7	5.6
	2-3	6-29	B1	121	7	7.4	.6	8.0
	2-5	36-44+	C	116	12	3.5	1.2	4.7
1.5 miles N. of Liberty Church on W. side of road between Odum and Screven. (Variation to Tifton)	3-3	11-21	B1	129	7	2.0	1.3	3.3
	3-4	21-35	B2	115	14	2.5	1.5	4.0
	3-5	35-48+	C2	116	13	3.5	1.0	4.5
Plummer sand (from Plummer soils):								
5 miles SW. of Odum, near Appling County line. (Modal)	4-1	0-6	A1	116	10	.5	2.4	2.9
	4-2	6-40	ACg	123	8	2.8	.6	3.4
	4-3	40-54	Dg	125	9	1.3	.8	2.1
Plummer fine sand (from Plummer soils):								
2 miles N. of Little Creek Church, on a dirt road. (Variation to Klej)	5-2	5-16	A2	109	12	1.6	6.4	8.0
	5-3	16-40	ACg	114	10	1.1	.3	1.4
	5-4	40-50	Dg	117	11	1.0	1.0	2.0
2 miles N. of Broadhurst, adjoining Atlantic Coast Line Railroad. (Variation to Rains)	6-1	0-5	A1	109	12	1.3	4.4	5.7
	6-2	5-31	ACg	113	12	1.8	6.8	8.6
	6-3	31-54	Dg	113	13	1.3	12.4	13.7

[1] Tests performed by the State Highway Dept. of Georgia in cooperation with U.S. Dept. of Commerce, Bureau of Public Roads, in accordance with standard procedures of the American Association of State Highway Officials (AASHO), except as stated in footnote 5.

[2] Based on the Moisture-Density Relations of Soils Using 5.5-lb. rammer and 12-in. drop, AASHO Designation T 99-57, Methods A and C.

[3] Mechanical analyses according to the AASHO Designation T 88. Results by this procedure frequently differ somewhat from results that would have been obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by

Physical properties were not estimated for Wet alluvial land or for Swamp, because the characteristics of these mapping units vary widely within a few feet and from one area to another.

Features affecting engineering work

Table 8, beginning on p. 54, lists, for each soil in the county, soil features that adversely or favorably affect work on highways and on structures that conserve soil and water. Generally, these features are not apparent to the engineer unless he has access to the results of a field investigation. They are, however, significant enough to influence construction practices.

Before the engineer locates secondary roads on sloping or moderately steep soils, he should determine the depth to a stable subgrade and the kind of material he is likely to find. Then he can estimate the difficulties of excavating. For all highways the engineer should investigate the likelihood of slopes (dips) occurring in the strata and of seepage water along or through the subgrade. He should also consider the presence of poor material within or slightly below the subgrade, for a layer of highly plastic clay impedes internal drainage and provides a poor foundation. If such a layer is present, it should be cut out and replaced before the pavement is constructed. If replacement is not feasible, as might be true in low, flat, or poorly drained areas, an embankment should be built to raise the roadway well above the plastic clay layer.

The suitability of the soil material for road fill depends largely on the texture of the soil material and on its natural water content. Highly plastic soil materials with high natural water content are rated poor. Highly erodible soils (silts and fine sands) are difficult to compact, require moderately gentle slopes and fast vegetation coverage, and are therefore rated fair to poor.

The ratings in table 8 under suitability as a source of sand are for sand used with other materials for subgrade and fill. The sand is not suitable for bituminous or concrete mixtures based on gradations.

Vertical alinement of roads is affected by poor drainage, flooding, seepage, plastic soil material, instability of slopes, and similar factors. The most important factors in

taken from six soil profiles, Wayne County, Ga.

Mechanical analyses [3]—Continued								Liquid limit [4]	Plasticity index [4]	Classification	
Percentage passing sieve—						Percentage smaller than—					
2-in.	¾-in.	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.002 mm.			AASHO [6]	Unified [7]
		100	98	86	19	16	5	NP	NP	A–2–4(0)	SM.
100	98	96	94	82	23	18	12	NP	NP	A–2–4(0)	SM.
100	98	93	92	80	35	33	25	25	6	A–2–4(0)	SM–SC.
100	96	87	85	80	23	17	5	NP	NP	A–2–4(0)	SM.
100	98	91	89	84	25	16	8	NP	NP	A–2–4(0)	SM.
100	93	71	69	60	30	26	18	27	10	A–2–4(0)	SC.
100	95	78	76	67	20	15	10	NP	NP	A–2–4(0)	SM.
100	94	69	66	59	29	26	21	30	11	A–2–6(0)	SC.
100	95	73	70	63	31	30	23	29	8	A–2–4(0)	SM–SC.
			100	79	19	11	5	NP	NP	A–2–4(0)	SM.
		100	99	81	23	20	8	NP	NP	A–2–4(0)	SM.
		100	97	79	30	27	18	17	5	A–2–4(0)	SM–SC.
			100	96	21	14	6	NP	NP	A–2–4(0)	SM.
			100	96	28	22	10	NP	NP	A–2–4(0)	SM.
			100	96	33	29	20	NP	NP	A–2–4(0)	SM.
			100	96	46	30	17	NP	NP	A–4(2)	SM.
			100	97	49	43	8	NP	NP	A–4(3)	SM.
		100	91	89	52	40	17	17	NP	A–4(3)	SM.

the pipette method and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes for soil.

[4] NP in column means nonplastic.

[5] Based on "A System of Soil Classification" by W. F. Abercrombie, Proc., Highway Research Board, 1954.

[6] Based on Standard Specifications for Highway Materials and Methods of Sampling and Testing (Pt. 1, Ed. 8): The Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes, AASHO Designation M 145–49.

[7] Based on the Unified Soil Classification System, Tech. Memo. No. 3–357, v. 1, Waterways Experiment Station, Corps of Engineers, March 1953.

Wayne County are poor drainage and flooding. An embankment should be built to keep the roadway above the point reached by a seasonally high water table and by floodwaters. All low-lying soils in the county have a high water table, and most of them are subject to flooding. A seasonally high water table is common in Wet alluvial land, Swamp, and in the Bayboro, Bladen, Coxville, Weston, Plummer, Portsmouth, Rains, Rutlege, and similar soils. Areas of the Wahee soils and of Swamp and Wet alluvial land are the most frequently flooded.

Interceptor ditches or underdrains may be needed to carry away subsurface seepage at the base of slopes on the Sunsweet soils and on the Gilead, Lakeland, and Sawyer soils.

Plastic soil material is in the Bayboro, Bladen, Coxville, Weston, Dunbar, Eulonia, Grady, Meggett, and Susquehanna soils. Cut slopes are unstable on the Lakeland, Lakewood, Sunsweet, and Ona soils. Filled slopes are unstable on the Blanton, Lakeland, Lakewood, Leon, Ona, Plummer, Rutlege, and St. Johns soils.

Pits for irrigation water are generally dug in the Goldsboro, Lynchburg, Klej, and other moderately well drained and somewhat poorly drained soils. Before these pits are dug, a detailed field examination is needed to determine the permeability of the substrata, the stability of the side slopes, and the presence of water-bearing sand within 10 to 16 feet of the surface. The water-bearing strata should recharge the pit at a weekly rate of 1½ inches of water per acre. The size of the pit is, therefore, determined by the number of acres to be irrigated and by the recharge rate of the water-bearing strata. A pit large enough to irrigate 2 acres generally should be 53 feet long and 24 feet wide at the bottom, and it should have a recharge rate that will cause water to rise at least 6 feet in the pit.

Difficulties encountered in constructing terraces, diversions, and waterways and in leveling land are caused by the thickness of the surface layer, a shallow root zone, erodibility, and low available water capacity. Drainage fields for septic tanks may fail in some places because of a seasonally high water table, a low intake rate, and slow permeability.

TABLE 6.—*Additional engineering test data* [1]

[Absence of entry indicates

Soil type	Depth	Horizon	Moisture-density [2]		Mechanical analyses [3]					
			Maximum density	Optimum moisture content	Percentage passing sieve—					Total clay [7]
					1½ in.	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 60 (0.25 mm.)	No. 200 (0.074 mm.)	
	Inches		*Lb. per cu. ft.*	*Percent*						*Percent*
Gilead sand.	0–20	A1	112. 7	9. 2	100	98	63	33	9	5
	20–30	B2	114. 1	13. 1	100	97	70	49	31	28
	30–48	C	108. 6	16. 1	100	98	74	49	35	32
Klej sand.	0–6	A1	104. 0	14. 2	--------	100	94	75	8	4
	6–30	AC	105. 8	13. 5	--------	100	93	74	8	4
	30–50	C	105. 1	12. 1	--------	100	94	77	8	3
Ona sand.	0–8	A1	110. 2	11. 1	--------	100	82	53	12	4
	8–14	B2h	115. 4	10. 1	--------	100	83	56	12	4
	14–36	C	119. 3	9. 3	100	99	81	58	16	7
St. Johns sand.	0–6	A1	97. 6	16. 7	--------	100	91	73	12	6
	6–25	B2h	103. 1	10. 5	--------	100	90	79	11	2
	25–30	B3	112. 5	12. 4	--------	100	91	81	16	8
Tifton loamy sand.	0–10	A1	118. 1	9. 2	100	80	65	46	12	5
	16–36	B2	116. 5	11. 6	100	72	62	52	25	19
	54–60	C	109. 6	15. 3	100	89	79	68	41	31

[1] Tests performed by the State Highway Dept. of Georgia, Div. No. 5 Br. Lab., Jesup, Georgia.

[2] Based on the Moisture-Density Relations of Soils Using 5.5-lb. rammer and 12-in. drop. AASHO Designation T 99–57, Methods A and C.

[3] Mechanical analyses according to method described in State Highway Dept. of Georgia, Standard Specifications, v. II (May 1, 1956), Art. 800.16.

[4] NP in column means nonplastic.

[5] Bearing value PSI based on mechanical analyses described in State Highway Dept. of Georgia, Standard Specifications, v. II (May 1, 1956), Art. 800.10.

Formation and Classification of Soils

This section has two main parts. The first part tells how the factors of soil formation affected the development of soils in Wayne County. In the second part the soil series represented in the county are described and are placed in higher categories.

Formation of Soils

Soil is produced when parent material, plants and animals, climate, and relief interact for a period of time. The nature of the soil at any point on the earth depends on the combination of these factors, including time, at that point. All of these factors have had an effect on the formation of every soil in Wayne County.

The relative importance of each factor differs from place to place; sometimes one factor is more important and sometimes another. In a few places one of the factors may dominate the formation of a soil and determine most of its properties, as is common when the parent material consists of pure quartz sand. Quartz sand is highly resistant to weathering, and soils formed in it commonly have faint horizons. Even in quartz sand, however, a distinct profile can be formed under certain types of vegetation if the topography is low and flat and the water table is high. Thus, for every soil, the past combination of the five major factors is of first importance in determining its present character.

Parent material

Parent material is the unconsolidated mass from which soil develops. It is largely responsible for the chemical and mineralogical composition of soils. In Wayne County the parent material of most of the soils is sedimentary; it is unconsolidated, fragmentary rock material that has been deposited by water. The material varies in texture from coarse sand to fine clay.

According to the Geologic Map of Georgia (*3*), there are five different kinds of marine terraces. These terraces are on the Hawthorn, Coharie, Sunderland, Penholoway, and Pamlico formations. The Hawthorn formation is of the Miocene epoch and lies principally in the northwestern and southwestern parts of the county. The main soils formed from this formation are the Tifton, Norfolk, and Gilead.

The Coharie formation is of the Pleistocene epoch and lies in the extreme western part of the county, near Brentwood. The major soils formed from this formation are the Rutlege and Plummer. The Sunderland formation is of the Pleistocene epoch and lies in the central and western parts of the county. The major soils formed from this formation are the Lakeland and Klej. The Penholoway formation is of the Pleistocene epoch and makes up a large part of the eastern half of the county. On it the Plummer, Rutlege, Leon, and Ona soils formed.

The Pamlico formation is also of the Pleistocene epoch and is the youngest formation in the county. This formation is in the extreme eastern part of the county and is

for soil samples taken from five soil profiles

value not determined]

Liquid limit [4]	Plasticity index [4]	Bearing [5] value PSI	Volume change [6]			Classification			
			Swell	Shrinkage	Total	Embankment [8]	Subgrade [8]	AASHO [9]	Unified [10]
			Percent	*Percent*	*Percent*				
NP	NP	84				1-A	A-1	A-3(0)	SP-SM.
43	21	384	2.08	3.93	5.01	1-B	C	A-2-7(2)	SC.
48	23	400	1.98	3.80	5.78	1-B	C	A-2-7(3)	SC.
NP	NP	40	2.36	0.00	2.36	1-A	A-1	A-3(0)	SP-SM.
NP	NP	40	3.21	0.00	3.21	1-A	A-1	A-3(0)	SP-SM.
NP	NP	24	3.14	0.00	3.14	1-A	A-1	A-3(0)	SP-SM.
NP	NP	76	4.13	0.00	4.13	1-A	A-1	A-2-4(0)	SP-SM.
NP	NP	104	2.12	0.00	2.12	1-A	A-1	A-2-4(0)	SP-SM.
NP	NP	112				1-A	A-1	A-2-4(0)	SM.
NP	NP	68	2.49	2.96	5.45	11B1	A-1	A-2-4(0)	SP-SM.
NP	NP	28				1-A	A-1	A-2-4(0)	SP-SM.
NP	NP	116	1.91	0.00	1.91	1-A	A-1	A-2-4(0)	SM.
16	NP	168	1.38	0.00	1.38	1-A	A-1	A-2-4(0)	SP-SM.
24	4	304	2.0	2.77	4.77	1-B	C	A-2-4(0)	SM-SC.
35	10	332	1.92	4.48	6.40	1-B	C	A-4(1)	SM-SC.

[6] Based on "A System of Soil Classification" by W. F. Abercrombie, Proc., Highway Research Board, 1954.

[7] Total clay determined by method described in State Highway Dept. of Georgia, Standard Specification, v. II (May 1, 1956), Art. 800.16.

[8] Classification according to Highway Dept. of Georgia, Standard Specifications, v. II (May 1, 1956), Embankment, Art. 810.18; Subgrade, Art. 810.25.

[9] Based on Standard Specifications for Highway Materials and Methods of Sampling and Testing (Pt. 1, Ed. 8): The Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes, AASHO Designation M 145-49.

[10] Based on the Unified Soil Classification System, Tech. Memo, No. 3-357, v. 1, Waterways Experiment Station, Corps of Engineers, March 1953.

the parent material of the Bladen, Coxville, Weston, and Bayboro soils.

Alluvial materials, consisting of sand, silt, and clay have been deposited on the flood plains of all the major streams. These materials were deposited recently and show little evidence of soil development.

Plants and animals

The kind and number of plants and animals that live on and in the soil are determined largely by the climate and, in varying degrees, by parent material, topography, and time. Bacteria, fungi, and other micro-organisms aid in weathering rock and in decomposing organic matter.

The larger plants furnish organic matter. They also transfer elements from the subsoil to the surface soil by assimilating these elements into the tissue of the plant and then depositing this tissue on the soil surface as fallen fruit, leaves, or stems. When trees are uprooted, soil material is carried to the surface. Earthworms and other small invertebrates slowly but continuously mix the soil and, by ingesting it, alter the chemical properties. The fungi and other micro-organisms that live in the soil are most numerous in the uppermost few inches.

Practically all of the soils of the county contain, in each cubic foot, millions of micro-organisms and many insects, small plants, and small animals. All these organisms continuously affect the physical and chemical properties of the soils.

In this county mixed forests of pines and hardwoods once covered the uplands. Gum and cypress trees grew on the flood plains. The undergrowth was chiefly bay, maple, swamp holly, titi, waxmyrtle, saw-palmetto, and gallberry. Many of the trees that were important in the development of the soils had roots that penetrated deep into the soil and shed their leaves annually. Through fallen leaves essential nutrients are transferred from the lower part of the soil to the upper part and partly replace the nutrients that are washed out by percolating waters. This transfer of nutrients is probably greater in drier or better drained soils than in poorly drained soils. Decaying leaves, twigs, roots, and whole plants add much organic matter to the upper part of the soil, where they are acted on by micro-organisms, earthworms, and other forms of life.

Man has changed the direction and rate of development of soils by clearing the forests, cultivating the soils, and introducing new kinds of plants. Few results from these activities can yet be seen, but studies show that the organic matter in soils is sharply reduced after fields are cultivated for a few months. Also, the somewhat coarse-textured, eluviated layer is lost through accelerated erosion in most sloping areas under cultivation. Although some results probably will not be evident for many centuries, the complex of living organisms affecting soil formation in Wayne County has been drastically changed as a result of man's activity.

TABLE 7.—*Brief description of the soils and their estimated*

[Absence of data indicates soil properties

Symbol on map	Soil name	Description of soil and site	Depth from surface
			Inches
Avp	Wet alluvial land.	About 3 feet or more of poorly drained and very poorly drained, mixed alluvial materials on flood plains of small streams; soil materials are dominantly sands and loamy sands.	0–36
BhA	Bayboro soils.	About 6 inches of loam or clay loam over 4 to 5 feet or more of clay; very poorly drained soils in depressions and drainageways; water stands on the surface for long periods.	0–5 5–54
BkA BjA	Bladen-Coxville-Weston complex. (Bladen component) Bladen loam and clay loam.	About 1 foot of sandy loam over 4 feet or more of clay that contains some sand lenses; poorly drained soils in low flats and depressions; water stands at or near the surface for long periods.	0–12 12–54
BnA	Blanton sand, 0 to 2 percent slopes.	About 4 feet or more of moderately well drained soil on low sand ridges; depth to seasonally high water table is about 18 inches in most places but is less in low areas.	0–9 9–48
DmA DmB	Dunbar fine sandy loam, 0 to 2 percent slopes. Dunbar fine sandy loam, 2 to 5 percent slopes.	About 1½ feet of fine sandy loam over about 1½ feet of sandy clay, underlain, in turn, by 1½ to 3 feet or more of clay; somewhat poorly drained soils on low knolls and ridges; depth to seasonally high water table approximately 1 foot.	0–15 15–30 30–48
EtA EtB	Eulonia loamy fine sand, 0 to 2 percent slopes. Eulonia loamy fine sand, 2 to 5 percent slopes.	About 1½ feet of loamy sand to fine sandy loam over 2 to 3 feet or more of clay; moderately well drained soils on low knolls and ridges; about 2 feet to seasonally high water table.	0–18 18–48
GCB GCB2 GCC GCC2 GCD GCD2 GCE2 GCF2	Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes. (Gilead component) Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, eroded. Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes. Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes, eroded. Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes. Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes, eroded. Gilead, Lakeland, and Sawyer soils, 12 to 17 percent slopes, eroded. Gilead, Lakeland, and Sawyer soils, 17 to 30 percent slopes, eroded.	About 1½ feet of loamy sand over about 2 feet of sandy clay, underlain, in turn, by 2 feet or more of sandy clay or clay; well-drained to somewhat excessively drained soils on uplands; about 3 feet to seasonally high water table; few seeps on a few slopes.	0–15 15–37 37–60
GnA GnB	Goldsboro loamy sand, thick surface, 0 to 2 percent slopes. Goldsboro loamy sand, thick surface, 2 to 5 percent slopes.	About 2 feet of loamy sand over 1½ feet of sandy clay loam, underlain, in turn, by 2½ feet or more of sandy clay loam or light sandy clay; moderately well drained soils on uplands; about 2 feet to seasonally high water table.	0–20 20–36 36–48
Gad	Grady loam.	About ½ foot of loam over ½ foot of sandy loam to sandy clay loam, underlain, in turn, by 1 foot to 5 feet or more of clay; poorly drained soil in small, rounded depressions; water stands on the surface during wet seasons.	0–5 5–13 13–44
IhA IhB	Irvington loamy sand, thick surface, 0 to 2 percent slopes. Irvington loamy sand, thick surface, 2 to 5 percent slopes.	About 2 feet of loamy sand over 2½ feet of sandy clay loam or sandy clay, underlain, in turn, by 1½ feet or more of clay or sandy clay; moderately well drained soils on uplands; iron pebbles are numerous on the surface and are in a slightly cemented layer that is about 4 inches thick and is about 2 feet below the surface; about 2 feet to seasonally high water table.	0–25 25–31 31–46

See footnotes at end of table.

physical properties significant to engineering

are variable and were not estimated]

Classification			Percentage passing sieve—			Permeability	Available water capacity	Shrink-swell potential
USDA texture	Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)			
						Inches per hour	*Inches per inch of soil*	
Loam or clay loam	OH	A–7	100	100	65–80	0. 05–0. 2	0. 12	High.
Clay	CH or MH	A–7	100	100	70–85	(1)	. 13	High.
Sandy loam	SM or ML	A–4	100	100	40–60	2. 5–5. 0	. 14	Low.
Clay	CL or CH	A–7	100	100	55–75	0. 05–0. 2	. 13	High.
Sand	SM, SP-SM	A–2	100	100	10–15	5. 0–10. 0	. 09	Low.
Sand	SM, SP-SM	A–2	100	100	10–15	5. 0–10. 0	. 09	Low.
Fine sandy loam	SM or ML	A–4	100	100	40–65	0. 8–2. 5	. 10	Low.
Sandy clay	CL	A–6	100	100	50–65	0. 2–0. 8	. 10	Moderate.
Clay	CL or CH	A–6, A–7	100	100	65–75	0. 05–0. 2	. 10	High.
Loamy fine sand	SM	A–2	100	100	15–25	2. 5–5. 0	. 10	Low.
Sandy clay or clay	CL or MH	A–6, A–7	100	100	55–75	0. 05–0. 2	. 12	High.
Loamy sand	SM	A–2	100	95–100	15–25	2. 5–5. 0	. 09	Low.
Sandy clay	SC	A–2, A–4	100	100	30–45	0. 2–0. 8	. 09	Moderate.
Sandy clay loam	CL or MH	A–6, A–7	100	100	50–75	0. 2–0. 8	. 10	High.
Loamy sand	SM	A–2	100	100	20–35	2. 5–5. 0	. 10	Low.
Sandy clay loam	SC	A–2, A–4	100	100	30–45	0. 8–2. 5	. 10	Moderate.
Sandy clay loam or sandy clay.	SC or ML	A–4	100	100	36–55	0. 2–0. 8	. 10	Moderate.
Loam	SM	A–4	100	100	35–45	0. 8–2. 5	. 12	Low.
Sandy loam to sandy clay loam.	SC	A–2, A–4	100	100	30–45	0. 8–2. 5	. 12	Moderate.
Clay	CL	A–7	100	100	55–70	(1)	. 13	Moderate to high.
Loamy sand	SM	A–2	[2] 95–100	[3] 95–100	20–25	2. 5–5. 0	. 10	Low.
Sandy clay loam to sandy clay.	SM or SC	A–2, A–4	[2] 90–95	[3] 90–95	30–45	0. 2–0. 8	. 10	Moderate.
Sandy clay loam to sandy clay.	SM or SC	A–2, A–4	100	100	30–45	0. 2–0. 8	. 10	Moderate.

TABLE 7.—*Brief description of the soils and their estimated*

Symbol on map	Soil name	Description of soil and site	Depth from surface
			Inches
KiA	Klej sand, shallow, 0 to 2 percent slopes.	About 2½ to 6 feet of sand over sandy clay loam; moderately well drained and somewhat poorly drained soils on lowlands; 10 to 24 inches to seasonally high water table.	0–10
KhA	Klej sand, 0 to 2 percent slopes.		10–32
			32–52
LpB	Lakeland sand, 0 to 5 percent slopes.	About 2½ to 6 feet of sand over sandy clay loam; somewhat excessively drained and excessively drained soils on upland sand ridges; about 3 feet to seasonally high water table.	0–3
LpC	Lakeland sand, 5 to 8 percent slopes.		3–54
LpD	Lakeland sand, 8 to 12 percent slopes.		
LAA	Lakeland sand, shallow, 0 to 2 percent slopes.		
LAB	Lakeland sand, shallow, 2 to 5 percent slopes.		
LwB	Lakeland coarse sand, deep, 2 to 5 percent slopes.	About 6 feet or more of very dry coarse sand; excessively drained soils on high sand ridges.	0–60
LwC	Lakeland coarse sand, deep, 5 to 8 percent slopes.		
LBC	Lakewood coarse sand, 5 to 8 percent slopes.	About 6 feet or more of dry coarse sand; excessively drained soil on high sand ridges; organic pan, less than 3 inches thick, at a depth of about 22 inches.	0–22
			22–74
LrA	Leon sand.	About 3 to 6 feet of sand underlain by sandy clay loam; somewhat poorly drained and poorly drained soil on low sand ridges; 16- to 20-inch layer is a hardpan of organic matter cemented with sand; seasonally high water table near the surface.	0–16
			16–20
			20–40
LzA	Lynchburg loamy sand, thick surface, 0 to 2 percent slopes.	About 1 foot to 2½ feet of loamy sand over about ½ foot of sandy loam, underlain, in turn, by 2 feet or more of sandy clay loam; somewhat poorly drained soils on lowlands; about 1 foot to the seasonally high water table.	0–20
			20–28
LvB	Lynchburg loamy sand, 2 to 5 percent slopes.		28–42
MBA	Meggett soils.	About ½ foot of sandy loam to clay loam over about ½ foot of sandy clay loam, underlain, in turn, by 3 to 4 feet or more of clay; poorly drained soils on low flats; water stands on surface during wet seasons; thin layer of calcareous pebbles about 20 inches from surface.	0–8
			8–12
			12–64
NfB	Norfolk loamy sand, thick surface, 2 to 5 percent slopes.	About 1 foot to 2½ feet of loamy sand over 2½ to 3 feet or more of sandy clay loam; well-drained soils on uplands; about 30 inches to seasonally high water table; a few iron concretions on the surface in places.	0–20
NfA	Norfolk loamy sand, thick surface, 0 to 2 percent slopes.		20–54
NhA	Norfolk loamy sand, 0 to 2 percent slopes.		
NhB	Norfolk loamy sand, 2 to 5 percent slopes.		
ObA	Ona sand.	About 3 feet of sand underlain by about 2 feet or more of sandy clay loam; somewhat poorly drained soil on low ridges; about 1 foot to seasonally high water table.	0–10
			10–36
PeA	Plummer soils.	About 3 feet of sand or fine sand over about 2 feet or more of sandy loam to sandy clay loam; poorly drained soils in depressions and on flats; water stands at or on the surface during wet periods.	0–40
			40–50
Por	Portsmouth loam.	About 1½ feet of loam over about 1 foot of clay loam, underlain, in turn, by about 2½ feet of sandy clay loam; very poorly drained soil in swampy areas and depressions; water stands on surface for long periods.	0–21
			21–36
			36–48
RfA	Rains loamy sand, thick surface.	About 1½ feet of loamy sand over ½ foot of sandy loam, underlain, in turn, by about 2½ feet of sandy clay loam; poorly drained soil in swampy areas and drainageways; water stands on surface during wet seasons.	0–18
			18–24
			24–54
RkA	Rutlege sand.	About 2½ to 5 feet or more of sand over loamy sand or sandy loam; very poorly drained soil in ponded and swampy areas and in drainageways; water stands on surface for long periods; surface layer often feels mucky.	0–12
			12–40
			40–50

See footnotes at end of table.

physical properties significant to engineering—Continued

Classification			Percentage passing sieve—			Permeability	Available water capacity	Shrink-swell potential
USDA texture	Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)			
						Inches per hour	*Inches per inch of soil*	
Sand	SM, SP-SM	A-2, A-3	100	100	10–15	5. 0–10. 0	0. 09	Low.
Sand	SM, SP-SM	A-2, A-3	100	100	10–15	5. 0–10. 0	. 09	Low.
Sandy clay loam	SM or SC	A-2	100	95–100	5–15	0. 8–2. 5	. 10	Low to moderate.
Sand	SM, SP-SM	A-2, A-3	100	100	10–15	5. 0–10. 0	. 05	Low.
Sand	SM, SP-SM	A-2, A-3	100	100	10–15	5. 0–10. 0	. 05	Low.
Coarse sand	SP	A-3	100	100	0–5	(4)	. 03	Very low.
Coarse sand	SP	A-3	100	100	0–5	(4)	. 03	Very low.
Coarse sand	SP	A-3	100	100	0–5	(4)	. 03	Very low.
Sand	SP-SM, SM	A-3, A-2	100	100	10–20	5. 0–10. 0	. 05	Low.
Sand	SM	A-2	100	100	15–25	2. 5–5. 0	. 05	Low.
Sand	SP-SM, SM	A-3, A-2	100	100	10–20	5–0–10. 0	. 05	Low.
Loamy sand	SM	A-2	100	100	20–25	2. 5–5. 0	. 09	Low.
Sandy loam	SC	A-2, A-4	100	100	30–50	2. 5–5. 0	. 09	Moderate.
Sandy clay loam	CL	A-6	100	100	50–60	0. 8–2. 5	. 09	Moderate.
Sandy loam to clay loam.	SM to CL	A-2, A-6	100	100	30–65	0. 8–2. 5	. 10	Low to moderate.
Sandy clay loam to clay.	SC to CL	A-4, A-6	100	100	45–75	0. 2–0. 8	. 11	Moderate.
Clay	CH	A-7	100	[5] 90–100	75–85	(1)	. 12	High.
Loamy sand	SM	A-2	100	100	20–35	2. 5–5. 0	. 07	Low.
Sandy clay loam	CL	A-6	100	100	50–65	0. 8–2. 5	. 09	Moderate.
Sand	SP-SM, SM	A-2	100	100	10–15	5. 0–10. 0	. 09	Low.
Sand	SP-SM, SM	A-2	100	100	10–15	5. 0–10. 0	. 09	Low.
Sand	SM	A-2	100	100	20–25	5. 0–10. 0	. 10	Low.
Sandy loam to sandy clay loam.	SM or SC	A-2, A-4	100	100	30–45	0. 8–2. 5	. 10	Low to moderate.
Loam	OL	A-4	100	100	50–65	0. 8–2. 5	. 10	Moderate.
Clay loam	CL or CH	A-7	100	100	65–75	0. 05–0. 2	. 10	High.
Sandy clay loam	SC or CL	A-4, A-6	100	100	45–65	0. 20–0. 80	. 10	Moderate.
Loamy sand	SM	A-2	100	100	20–35	2. 5–5. 0	. 10	Low.
Sandy loam	SM	A-2, A-4	100	100	30–45	2. 5–5. 0	. 10	Low.
Sandy clay loam	SC or CL	A-4, A-6	100	100	36–55	0. 8–2. 5	. 11	Moderate.
Sand	SP-SM, SM	A-3, A-2	100	100	10–20	2. 5–5. 0	. 10	Low
Sand	SP-SM, SM	A-3, A-2	100	100	10–20	5. 0–10. 0	. 10	Low.
Loamy sand	SM	A-2	100	100	15–20	2. 5–5. 0	. 10	Low.

TABLE 7.—*Brief description of the soils and their estimated*

Symbol on map	Soil name	Description of soil and site	Depth from surface
			Inches
Stj	St. Johns sand.	About 30 inches to several feet of sand over sandy loam or sandy clay loam; very poorly drained soil along swampy areas and in depressions; water stands on surface for short periods; 13- to 19-inch layer commonly is slightly cemented.	0–13 13–19 19–50
SmD2	Sunsweet soils, 5 to 12 percent slopes, eroded.	About ½ foot of sandy loam over about 3 feet of sandy clay loam to sandy clay, underlain, in turn, by 3 feet or more of coarse sandy loam; well-drained soils on uplands; 3 to 4 feet to seasonally high water table; many iron pebbles on and in soils; soils highly susceptible to further erosion.	0–6 6–38 38–70
SmE3	Sunsweet soils, 8 to 17 percent slopes, severely eroded.		
SoC	Susquehanna loamy sand, shallow, 2 to 8 percent slopes.	About ½ foot of loamy sand over ½ foot of sandy clay, underlain, in turn, by about 1 foot of clay that rests on sandstone bedrock in many places; somewhat poorly drained soil on uplands; about 1 foot to seasonally high water table.	0–10 10–16 16–24
Swa	Swamp.	About 3 to 6 feet of very poorly drained, intermixed sand, silt, and clay deposited by streams; water on surface most of the time.	0–40
TqB	Tifton loamy sand, 2 to 5 percent slopes.	About 1 foot of loamy sand over ½ foot of sandy loam, underlain, in turn, by about 1½ feet of sandy clay, and that by about 2 feet of sandy clay loam; well-drained soils on uplands; about 3 feet to seasonally high water table; many iron pebbles on surface.	0–10 10–16 16–36 36–60
TqA	Tifton loamy sand, 0 to 2 percent slopes.		
TqB2	Tifton loamy sand, 2 to 5 percent slopes, eroded.		
TrA	Tifton loamy sand, thick surface, 0 to 2 percent slopes.		
TrB	Tifton loamy sand, thick surface, 2 to 5 percent slopes.		
TvB	Tifton loamy sand, thin solum, 2 to 5 percent slopes.		
TvB2	Tifton loamy sand, thin solum, 2 to 5 percent slopes, eroded.		
TvC	Tifton loamy sand, thin solum, 5 to 8 percent slopes.		
TvC2	Tifton loamy sand, thin solum, 5 to 8 percent slopes, eroded.		
Waf	Wahee fine sandy loam.	About 1½ feet of fine sandy loam over 3 feet or more of sandy clay; moderately well drained and somewhat poorly drained soil on low stream terraces that are flooded periodically.	0–15 15–48
WIA	Weston soils.	About 2 feet of loamy sand or sandy loam over ½ foot of sandy clay, underlain, in turn, by 2 feet or more of clay containing thin lenses of sand; poorly drained soils on lowlands and in depressions; water stands on surface during wet periods.	0–22 22–28 28–56

[1] Less than 0.05 inch per hour.
[2] Only iron pebbles and nodules retained on No. 4 sieve.
[3] Only iron pebbles and nodules retained on No. 10 sieve.
[4] Greater than 10.00.
[5] Only marl nodules retained on No. 10 sieve.

physical properties significant to engineering—Continued

Classification			Percentage passing sieve—			Permeability	Available water capacity	Shrink-swell potential
USDA texture	Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)			
						Inches per hour	*Inches per inch of soil*	
Sand	SP-SM, SM	A-3, A-2	100	100	10–20	5. 0–10. 0	0. 10	Low.
Sand	SM	A-2	100	100	15–25	2. 5–5. 0	. 10	Low.
Sand	SP-SM, SM	A-3, A-2	100	100	10–20	5. 0–10. 0	. 10	Low.
Sandy loam	SC	A-2 to A-4	100	[3] 85–95	30–45	2. 5–5. 0	. 08	Moderate.
Sandy clay loam to sandy clay.	SC or CL	A-4, A-6	100	[3] 95–100	40–65	0. 2–0. 8	. 09	Moderate.
Coarse sandy loam	SM	A-2 to A-4	100	100	25–45	2. 5–5. 0	. 07	Moderate.
Loamy sand	SM	A-2	100	100	20–25	2. 5–5. 0	. 08	Low.
Sandy clay	CL	A-6	100	100	50–65	0. 2–0. 8	. 11	Moderate.
Clay	CH or MH	A-7	100	100	70–85	0. 05–0. 2	. 12	High.
Loamy sand	SM	A-2	100	[3] 95–100	15–25	2. 5–5. 0	. 11	Low.
Sandy loam	SC, SM	A-2, A-4	100	100	30–50	2. 5–5. 0	. 10	Low to moderate.
Sandy clay	CL	A-6	100	100	50–65	0. 2–0. 8	. 09	Moderate.
Sandy clay loam	CL or CH	A-6 or A-7	100	95–100	30–45	0. 8–2. 5	. 09	Moderate.
Fine sandy loam	SM or ML	A-4	100	100	40–55	0. 8–2. 5	. 09	Low.
Sandy clay	CL	A-6	100	100	50–65	0. 2–0. 8	. 11	Moderate.
Loamy sand or sandy loam.	SM	A-2	100	100	15–25	2. 5–5. 0	. 12	Low.
Sandy clay with sand lenses.	SC	A-6	100	100	40–50	0. 2–0. 8	. 13	Moderate.
Clay with sand lenses.	CL	A-6	100	100	50–65	0. 05–0. 2	. 14	Moderate.

TABLE 8.—*Interpretation of*

Soil series and map symbols	Suitability as source of—			Soil features affecting—		
	Topsoil	Sand	Road fill	Highway location	Farm Ponds	
					Reservoir area	Embankment
Wet alluvial land (Avp)	Poor	Poor	Poor	Floods; high water table.	Rapid permeability and excessive seepage.	Low strength and stability.
Bayboro (BhA)	Poor	Poor	Poor	High water table; highly plastic soil material.	Very slow permeability and slow seepage.	High to very high shrink-swell potential; cracks when dry.
Bladen and Bladen-Coxville-Weston (BjA, BkA).	Fair	Poor	Poor	High water table; plastic soil material.	Slow permeability and seepage.	High shrink-swell potential; cracks when dry.
Blanton (BnA)	Fair	Fair to good.	Fair to good.	Unstable slopes	Rapid permeability and seepage.	Very rapid permeability; low strength and stability.
Dunbar (DmA, DmB)	Good	Poor	Fair above 2½ to 3 feet; poor below.	High water table; plastic subsoil.	Moderate permeability and slow to very slow seepage.	Moderate strength and stability; surface layer permeable; subsurface layers moderately permeable and have high shrink-swell potential.
Eulonia (EtA, EtB)	Good	Poor	Fair to good above 1½ feet; poor to fair below.	Seasonal high water table at about 2 feet; moderately slow to slow permeability below 18 inches; plastic soil material below 1½ feet.	Moderately slow permeability and slow seepage.	Moderate strength and stability; surface layer permeable; subsurface layers slowly permeable and have high shrink-swell potential.
Gilead, Lakeland, and Sawyer (GCB, GCB2, GCC, GCC2, GCD, GCD2, GCE2, GCF2).	Poor to fair	Fair to good.	Fair to good.	Fair to good stability; some seepage areas.	Moderate permeability and seepage.	Moderately rapid to moderately slow permeability; fair to good strength and stability.
Goldsboro (GnA, GnB)	Good	Fair; poorly graded; limited in thickness.[1]	Fair to good.	Strong stability; moderate shrink-swell potential.	Moderate permeability and slow seepage.	Moderate permeability and moderate shrink-swell potential.
Grady (Gad)	Poor	Unsuitable.	Fair above 1 foot; poor below.	High water table; wet, plastic material below 1 foot.	Moderately slow permeability and slow seepage.	Surface layer moderately permeable; high shrink-swell potential.
Irvington (IhA, IhB)	Fair	Poor	Fair to good.	Strong stability	Moderate permeability and slow seepage.	Moderate permeability and moderate to high shrink-swell potential.

See footnote at end of table.

engineering properties of soils

Soil features affecting—Continued						
Agricultural drainage	Irrigation	Pits excavated for irrigation	Terraces and diversions	Waterways	Land leveling	Filter fields for septic tanks
Wet soil; not commonly used for cultivated crops.	Wet soil; not commonly used for cultivated crops.	Rapid permeability and unstable slopes.	Not needed; level soil.	Wet, level soil; not generally cultivated.	Level soil; not generally cultivated.	High water table; location not suitable.
Depressed areas; outlets scarce; surface drainage needed.	Not needed; wet soil.	Very slow permeability; high water table; high strength and stability.	Not needed; level soil.	Not needed; level soil.	Level soil; not generally cultivated.	High water table; very slow permeability.
Depressed areas; outlets scarce; surface drainage needed.	Not needed; wet soils.	Slow permeability; high water table; high strength and stability.	Not needed; level soils.	Not needed; level soils.	Soil properties favorable in surface layer.	High water table; slow permeability.
Rapid permeability; seasonal high water table in low areas; surface drainage needed.	Low water-holding capacity; rapid intake rate; requires frequent applications of water.	Rapid permeability and seepage.	Not needed; level soil.	Not needed; level soil.	Soil properties favorable.	Seasonal high water table approximately 18 inches below surface.
Seasonal high water table; surface drainage needed.	High water-holding capacity and moderate permeability.	Moderate permeability; high strength and stability.	Not generally needed, but soil properties favorable.	Not generally needed, but soil properties favorable.	Soil properties favorable.	Seasonal high water table; moderately slow to slow permeability below 30 inches.
Seasonal high water table; surface drainage needed.	Moderately high water-holding capacity; moderately rapid permeability in surface layer.	Moderately slow permeability; high strength and stability.	Not generally needed, but soil properties favorable.	Not generally needed, but soil properties favorable.	Soil properties favorable.	Seasonal high water table at 2 feet; moderately slow permeability below 18 inches.
Not needed	Low to moderately low water-holding capacity.	Moderate to rapid intake rate.	Steep slopes; moderately slow to rapid permeability; high erodibility.	High erodibility; moderate to low water-holding capacity; low fertility.	Moderate root zone; high erodibility.	Moderate to rapid intake rate of water; moderately slow permeability.
Seasonally high water table; surface drainage needed.	Moderate to high water-holding capacity; moderately rapid intake rate.	Moderate permeability and strong stability.	Soil properties favorable.	Soil properties favorable.	Soil properties favorable.	Seasonal high water table at approximately 2 feet.
High water table; surface drainage needed.	Not needed; wet soil.	Moderately slow permeability; high strength and stability.	Not needed; level soil.	Not needed; level soil.	Soil properties favorable in surface layer.	High water table; very slow permeability.
Seasonal high water table; surface drainage needed.	Moderate to high water-holding capacity; moderate intake rate.	Moderate permeability; strong stability.	Soil properties favorable.	Soil properties favorable.	Soil properties favorable.	Seasonal high water table at approximately 2 feet.

TABLE 8.—*Interpretation of*

Soil series and map symbols	Suitability as source of—			Soil features affecting—		
	Topsoil	Sand	Road fill	Highway location	Farm Ponds	
					Reservoir area	Embankment
Klej (KhA, KiA)	Fair	Good; poorly graded.[1]	Fair to good.	High water table; slopes erode easily.	Rapid permeability and excessive seepage.	Rapid permeability and low strength and stability.
Lakeland (LpB, LpC, LpD, LAA, LAB).	Fair	Fair to good; poorly graded.[1]	Fair to good.	Unstable slopes	Rapid permeability and excessive seepage in shallow soils; moderate permeability and moderate seepage below 30 inches.	Low strength and stability.
Lakeland coarse sand, deep (LwB, LwC).	Poor	Good; poorly graded.[1]	Poor; good if confined.	Unstable slopes	Very rapid permeability and excessive seepage.	Very low strength and stability.
Lakewood coarse sand (LBC)	Poor	Fair	Poor; good if confined.	Unstable slopes	Very rapid permeability and excessive seepage.	Very low strength and stability.
Leon sand (LrA)	Poor	Fair	Fair to good.	Unstable slopes	Rapid permeability and excessive seepage.	Very low strength and stability.
Lynchburg (LvB, LzA)	Good	Poor to fair; poorly graded.[1]	Fair to good.	Seasonal high water table; moderate permeability.	Moderate permeability and slow seepage.	Moderate permeability and moderate shrink-swell potential.
Meggett (MBA)	Fair	Poor	Poor	Seasonal high water table; moderately slow to slow permeability; plastic soil material below 1 foot.	Moderately slow to slow permeability and very slow seepage.	Moderately slow to slow permeability and high shrink-swell potential.
Norfolk (NhA, NhB, NfA, NfB).	Good	Fair; poorly graded.[1]	Fair to good.	Moderately high strength and stability.	Moderate permeability and moderately slow seepage in subsoil.	Moderately rapid permeability in surface layer and moderate permeability in subsoil; moderately high strength and stability.
Ona (ObA)	Fair to poor.	Fair; poorly graded.[1]	Good	Seasonal high water table; slopes erode easily; low strength and stability.	Rapid permeability and excessive seepage.	Rapid permeability; low shrink-swell potential; low strength and stability.
Plummer (PeA)	Fair	Fair; poorly graded.[1]	Fair to good.	Seasonal high water table; slopes erode easily; low strength and stability.	Rapid permeability in surface layer and moderate permeability in subsoil.	Rapid permeability; low shrink-swell potential; low strength and stability.

See footnote at end of table.

engineering properties of soils—Continued

Soil features affecting—Continued						
Agricultural drainage	Irrigation	Pits excavated for irrigation	Terraces and diversions	Waterways	Land leveling	Filter fields for septic tanks
Seasonal high water table; surface drainage needed.	Low water-holding capacity; rapid intake rate; requires frequent applications of water.	Permeability generally rapid, but shallow phases have moderate permeability below 30 inches; moderate stability.	Not generally needed, but soil properties favorable.	Not generally needed, but soil properties favorable.	Soil properties favorable.	Seasonal high water table.
Not needed	Low water-holding capacity; rapid intake rate.	Rapid permeability; low strength and stability.	Rapid intake rate; little or no runoff.	Low water-holding capacity.	Not generally needed, but soil properties favorable.	Soil properties favorable.
Not needed	Very rapid intake rate.	Very rapid permeability; very low strength and stability.	Very rapid intake rate; no runoff.	Very low water-holding capacity.	Not generally needed.	Soil properties favorable.
Not needed	Very rapid intake rate.	Very rapid permeability; very low strength and stability.	Very rapid intake rate; no runoff.	Very low water-holding capacity.	Not generally needed.	Soil properties favorable.
Rapid permeability; seasonal high water table.	Low water-holding capacity; rapid intake rate.	Rapid permeability; low strength and stability.	Not generally cultivated.	Not generally cultivated.	Not generally cultivated.	Seasonal high water table.
Seasonal high water table; surface drainage needed.	Moderately high water-holding capacity; moderate intake rate.	Moderate permeability in underlying layers; high strength and stability.	Soil properties favorable.	Soil properties favorable.	Soil properties favorable.	Seasonal high water table.
Seasonal high water table; surface drainage needed; outlets scarce.	High water-holding capacity; moderate to low intake rate.	Moderately slow to slow permeability.	Wet soil; not generally cultivated.	Wet soil; not generally cultivated.	Wet soil; not generally cultivated.	Seasonal high water table.
Drainage not needed.	Moderately high water-holding capacity; moderately high intake rate.	Moderate permeability in subsoil; moderately slow seepage; high strength and stability.	Soil properties favorable.	Soil properties favorable.	Soil properties favorable.	Soil properties favorable.
Seasonal high water table; surface drainage needed.	Low water-holding capacity; rapid intake rate.	Rapid permeability; low strength and stability.	Not generally needed, but soil properties favorable.	Not generally needed, but soil properties favorable.	Soil properties favorable.	Seasonal high water table.
Seasonal high water table; surface drainage needed.	Wet soil; not generally cultivated.	Rapid permeability to a depth of 40 inches; low strength and stability.	Wet soil; not generally cultivated.	Wet soil; not generally cultivated.	Wet soil; not generally cultivated.	Seasonal high water table.

TABLE 8.—*Interpretation of*

Soil series and map symbols	Suitability as source of—			Soil features affecting—		
	Topsoil	Sand	Road fill	Highway location	Farm Ponds	
					Reservoir area	Embankment
Portsmouth (Por)	Fair	Poor	Poor	Seasonal high water table; wet, plastic subsoil.	Moderately slow permeability; some seepage in subsoil.	Moderately slow permeability and moderately high strength and stability.
Rains (RfA)	Fair to good.	Unsuitable	Fair	Seasonal high water table; moderate strength and stability in subsoil.	Moderate permeability and slow seepage.	Moderate permeability and moderate strength and stability.
Rutlege (RkA)	Fair	Poor	Poor; good if confined.	Seasonal high water table; slopes erode easily; low strength and stability.	Moderately rapid to rapid permeability and excessive seepage.	Moderately rapid to rapid permeability and low strength and stability.
St. Johns (Stj)	Fair	Poor	Poor; good if confined.	Seasonal high water table; low strength and stability.	Moderately rapid to rapid permeability and excessive seepage.	Moderately rapid to rapid permeability and low strength and stability.
Sunsweet (SmD2, SmE3)	Poor	Unsuitable	Fair to good.	Unstable slopes; moderate stability.	Slow permeability; seepage at toe slopes.	Slow permeability and moderate strength and stability.
Susquehanna (SoC)	Poor	Unsuitable.	Fair to a depth of 24 inches.	Seasonal high water table; rock generally at 24 inches.	Rock at a depth of 24 inches.	Slow permeability.
Swamp (Swa)	Variable	Unsuitable.	Unsuitable.	Frequent flooding.	Frequent flooding.	Material variable; not generally used for embankment.
Tifton (TqA, TqB, TqB2, TrA, TrB, TvB, TvB2, TvC, TvC2).	Good	Poor to fair; poorly graded.[1]	Fair to good.	High strength and stability.	Moderate permeability and slow seepage.	Moderate permeability and high strength and stability.
Wahee (Waf)	Fair to poor.	Unsuitable.	Fair to poor.	Seasonal high water table; moderate permeability; occasionally flooded.	Moderate permeability; slow seepage; occasional floods.	Moderate permeability and moderate shrink-swell potential.
Weston (WlA)	Fair	Poor to fair; poorly graded.[1]	Fair to good to a depth of 24 inches.	Seasonal high water table; moderately rapid permeability in surface layer and moderate permeability in subsoil.	Moderately rapid permeability in surface layer and moderate permeability in subsoil; slow seepage.	Moderately rapid permeability in surface layer and moderate permeability in subsoil; moderate shrink-swell potential.

[1] Poorly graded—large percentage of sand grains of equal size.

engineering properties of soils—Continued

Soil features affecting—Continued						
Agricultural drainage	Irrigation	Pits excavated for irrigation	Terraces and diversions	Waterways	Land leveling	Filter fields for septic tanks
Seasonal high water table; surface drainage needed; outlets scarce.	Not needed; wet, level soil.	Moderately high permeability moderately high strength and stability.	Wet, level soil	Wet, level soil	Soil conditions favorable.	Seasonal high water table.
Seasonal high water table; surface drainage needed.	Moderate water-holding capacity; moderate intake rate.	Moderate permeability; moderate strength and stability.	Wet, level soil	Wet, level soil	Soil conditions favorable.	Seasonal high water table.
Seasonal high water table; surface drainage needed; outlets scarce.	Wet soil; not generally cultivated.	Moderately rapid to rapid permeability; low strength and stability.	Wet, level soil	Wet, level soil	Wet, level soil	Seasonal high water table.
Seasonal high water table; surface drainage needed; outlets scarce.	Wet soil; not generally cultivated.	Moderately rapid to rapid permeability.	Wet, level soil	Wet, level soil	Wet, level soil	Seasonal high water table.
Not needed	Poor agricultural soils; irrigation may not be practical.	Steep slopes; not suitable.	Not needed, because of steep slopes.	Not needed, because of steep slopes.	Poor agricultural soils; shallow root zone.	Slopes range from 5 to 17 percent; soil material changes within short distances.
Seasonal high water table; surface drainage needed; rock at 24 inches.	Poor agricultural soil; irrigation may not be practical.	Rock at 24 inches; not suitable.	Slopes range from 2 to 8 percent; rock at 24 inches.	Rock at 24 inches.	Shallow root zone; rock at 24 inches.	Seasonal high water table; rock at 24 inches.
Wet, level soil; frequent flooding.	Wet soil; frequent flooding.	Wet soil; frequent flooding.	Wet soil; frequent flooding.	Wet soil; frequent flooding.	Wet soil; frequent flooding.	Frequent flooding.
Not needed	Moderately high water-holding capacity; moderately high intake rate.	Moderate permeability in subsoil; high strength and stability.	Soil properties favorable.	Soil properties favorable.	Soil properties favorable.	Moderately rapid permeability in surface layer and moderate to moderately slow permeability in subsoil.
Seasonal high water table; occasional flooding.	Seasonal high water table; occasional flooding.	Moderate permeability; high strength and stability.	Level soil; not generally cultivated.	Level soil; not generally cultivated.	Soil properties favorable.	Seasonal high water table and occasional floods
Seasonal high water table; surface drainage needed.	Moderately high water-holding capacity; moderately rapid intake rate.	Moderate permeability in subsoil; high strength and stability.	Not generally needed; level soil.	Not generally needed; level soil.	Soil properties. favorable.	Seasonal high water table.

Climate

The climate in Wayne County is warm and humid. Summers are long and hot, and winters are mild. Because rainfall is abundant, many of the soils are moist or are saturated during much of the year. In this kind of climate, the decay of minerals, the dissolution of bases, and the translocation of clay are accelerated. Iron is oxidized in soils that have good internal drainage, and organic matter decays rapidly. The soils that have rapid permeability are highly leached by the water that moves through them.

Relief

The relief of the soils modifies the effects of climate and vegetation. It influences soil formation through its effect on drainage, erosion, temperature, and plant cover. Although most of the soils in Wayne County are level or nearly level, soil formation has been affected by three general kinds of landscape—low flats, broad ridges, and sand ridges.

The low flats are broad but are broken by swampy or ponded areas and by sluggish drainageways. The water table of the flats is high. Most of the soils are poorly drained and very poorly drained and are gray and distinctly mottled.

The broad ridges are broken by small, rounded ponds and by many small streams. These small streams have cut below the general level of the plain and have formed moderately steep side slopes. In this area the water table is several feet below the surface, and the soils are moderately well drained and well drained. They are yellow to yellowish brown.

The sand ridges have rolling topography and are dissected by streams. The soils on these ridges are deep and sandy, and the water table is more than 6 feet below the surface.

The following elevations of towns in the county are typical: Jesup, 100 feet; Screven, 120 feet; Odum, 155 feet; and Mount Pleasant, 59 feet.

Time

The length of time required for a mature soil to develop depends largely on the other factors of soil formation. A normal, or mature, soil profile in Wayne County and elsewhere is one that has easily recognized zones of eluviation (A horizon) and of illuviation (B horizon). Less time is generally required for a soil to develop in humid, warm areas where vegetation is rank than in dry or cold areas where the vegetation is scant. Also, other factors being equal, less time is required if the parent material is coarse textured than if it is fine textured.

The age of soils varies considerably. Generally, the older soils show a greater degree of horizon differentiation than younger ones. For example, on the smoother uplands in the western part of the county, the soils have the most profile development. The soils on the stronger slopes have had less profile development because geologic erosion has removed the soil material rapidly. On the large, broad flats in the eastern half of the county, the soils formed primarily from the Sunderland formation but have been in place for such a short time that strong profiles have not developed.

Classification of Soils

In the soil classification used in the United States (*5*) soils are placed in six categories, one above the other. Beginning at the top, the categories are the order, suborder, great soil group, family, series, and type.

In the highest category, which is the soil order, there are three classes, but thousands of soil types are recognized in the lowest category. The suborder and family categories have never been fully developed and, thus, have been little used. Attention has largely been directed toward great soil groups, series, and types. Classes in the highest category of classification are the zonal, intrazonal, and azonal orders (*6*).

In the zonal order are soils with evident, genetically related horizons that reflect the predominant influence of climate and living organisms in their formation. Soils in the Red-Yellow Podzolic great soil group are the only soils in the zonal order in Wayne County.

The intrazonal order consists of soils with evident, genetically related horizons that reflect the dominant influence of a local factor of topography or parent materials over the effects of climate and living organisms. Humic Gley soils, Low-Humic Gley soils, and Ground-Water Podzols are the great soil groups in the intrazonal order in Wayne County.

In the azonal order are soils that lack distinct, genetically related horizons because they are steep, or because their parent material resists the soil-forming processes. Only the Regosol great soil group is in the azonal order in Wayne County.

Table 9 lists the soil series by orders and great soil groups and gives some of the distinguishing characteristics of each series. In the following pages each great soil group represented in Wayne County is discussed. Also presented is a detailed profile description for a representative soil of each series.

Red-Yellow Podzolic soils

Soils in the Red-Yellow Podzolic great soil group are well developed, are well drained, and formed under forest vegetation in a climate that ranges from warm-temperate humid to tropical humid. These soils have thin, organic (AO) and organic-mineral (A1) horizons. The organic-mineral horizon is underlain by a light-colored, bleached (A2) horizon that is underlain, in turn, by a red, yellowish-red, or yellow and more clayey (B) horizon. The parent materials are all more or less siliceous. Coarse, reticulate streaks or mottles of red, yellow, brown, and light gray occur in the deeper horizons (*5*). The processes dominant in the development of these soils are laterization and podzolization.

The soils in this group generally have a low cation-exchange capacity. Kaolinite is the dominant clay mineral. These soils also contain small amounts of feldspar, vermiculite, gibbsite, and montmorillonite. The subsoil has colors of medium to high chroma and a moderate to strong, subangular blocky structure.

In Wayne County Red-Yellow Podzolic soils have a dark-colored, thin A1 horizon and a well-defined A2 horizon. The A2 horizon has a weak, crumb or granular structure. Reaction in the A horizon is strongly acid to very strongly acid. In structure the B2 horizon ranges from moderate, medium, angular to moderate, medium, subangular blocky. It is strongly acid to very strongly

TABLE 9.—*Classification of soil series by higher categories*

Great soil group and soil series	Position	Soil drainage	Slope range	Parent material	Degree of profile development
ZONAL SOILS					
Red-Yellow Podzolic soils:			*Percent*		
Dunbar [1]	Low uplands	Somewhat poor	0–5	Sandy clay	Weak.
Eulonia [1]	Low uplands	Moderately good	0–5	Sandy clay loam and sandy clay.	Medium.
Gilead	Dissected uplands	Good to somewhat excessive.	2–30	Sandy clay loam and sandy clay.	Medium.
Goldsboro	Smooth uplands	Moderately good	0–5	Beds of sandy loam and sandy clay loam.	Medium.
Irvington [2]	Smooth uplands	Moderately good	0–5	Beds of sandy loam and sandy clay loam.	Medium.
Lynchburg [1]	Smooth uplands	Somewhat poor	0–5	Beds of sandy loam and sandy clay loam.	Weak.
Norfolk	Rolling uplands	Good	0–5	Beds of sandy loam and sandy clay loam.	Medium.
Sawyer	Rolling uplands	Moderately good	2–30	Beds of clay and sandy clay.	Strong.
Sunsweet [3]	Dissected uplands	Good	5–17	Sandy clay	Weak.
Susquehanna [3]	Dissected uplands	Somewhat poor	2–8	Clay	Weak.
Tifton	Rolling uplands	Good	0–8	Sandy clay	Strong.
Wahee [4]	Low stream terraces	Moderately good to somewhat poor.	0–2	Fine sandy loam over clayey alluvium.	Weak.
INTRAZONAL SOILS					
Humic Gley soils:					
Bayboro	Depressions and bays on upland flats.	Very poor	0–2	Clay	Weak.
Portsmouth	Depressions and bays on upland flats.	Very poor	0–2	Sandy clay loam	Weak.
Rutlege	Depressions and bays on upland flats.	Very poor	0–2	Sand and loamy sand	Weak.
Low-Humic Gley soils:					
Bladen	Flats and slight depressions on uplands.	Poor	0–2	Clay	Weak.
Coxville	Broad flats on uplands	Poor	0–2	Clay	Weak.
Grady	Depressions and bays on uplands.	Poor	0–2	Beds of sandy clay and clay.	Weak.
Meggett	Low upland flats	Poor	0–2	Clay over marl	Weak.
Plummer	Low upland flats	Poor	0–2	Beds of sand	Weak.
Rains	Depressions on uplands	Poor	0–2	Beds of sand over sandy clay loam.	Weak.
Weston	Low flats and depressions on uplands.	Poor	0–2	Beds of sand over clayey material.	Weak.
Ground-Water Podzols:					
Leon	Low upland ridges	Somewhat poor to poor	0–2	Sand (high water table)	Medium.
Ona	Low upland ridges	Somewhat poor	0–2	Sand and loamy sand	Weak.
St. Johns	Around depressions on upland flats.	Very poor	0–2	Sand (high water table)	Weak.
AZONAL SOILS					
Regosols:					
Blanton	Low upland ridges	Moderately good	0–2	Sand	Weak.
Klej	Low upland ridges	Moderately good to somewhat poor.	0–2	Unconsolidated sand	Weak.
Lakeland	Rolling uplands	Somewhat excessive to excessive.	0–12	Unconsolidated sand	Weak.
Lakewood [5]	Rolling uplands	Excessive	5–8	Unconsolidated sand	Weak.

[1] Has some profile characteristics of Low-Humic Gley soils.
[2] Contains fragipan.
[3] Has some profile characteristics of Regosols.
[4] Has some profile characteristics of Planosols (argipan).
[5] Has some profile characteristics of Podzols.

acid and contains more clay than the A2 horizon. The C horizon is highly mottled, and its structure is generally less strong than that of the B2 horizon.

NORFOLK AND TIFTON SOILS

The Norfolk and Tifton soils are good examples of the Red-Yellow Podzolic soils. They have a thick, brownish-yellow to yellowish-brown subsoil with moderate, medium, subangular blocky structure. Their C horizon is highly mottled. The Tifton soils are finer textured in the B2 horizon than the Norfolk soils. Also, the Tifton soils have many concretions of iron throughout their profile.

Profile of Norfolk loamy sand, thick surface, 2 to 5 percent slopes (in a moist, wooded area 300 yards south of Goose Creek and 0.5 mile west of the Altamaha River)—

A1—0 to 6 inches, grayish-brown (2.5Y 5/2) loamy sand; weak, fine, granular structure; loose; few iron pebbles; very strongly acid; 6 to 8 inches thick; clear, wavy boundary.

A2—6 to 12 inches, pale-yellow (2.5Y 7/4) loamy sand; structureless; loose; few iron pebbles; very strongly acid; 5 to 12 inches thick; clear, wavy boundary.

A3—12 to 20 inches, yellow (10YR 7/6) loamy sand; weak, fine, granular structure; very friable; few iron pebbles; very strongly acid; 7 to 10 inches thick; gradual, wavy boundary.

B2—20 to 36 inches, brownish-yellow (10YR 6/6) sandy clay loam; weak, medium, subangular blocky structure; friable; very strongly acid; 12 to 18 inches thick; gradual, wavy boundary.

B3—36 to 54 inches +, brownish-yellow (10YR 6/6) sandy clay loam with common, medium, distinct mottles of light gray (2.5Y 7/2) and reddish yellow (5YR 7/6); weak, medium, subangular blocky structure; friable; very strongly acid.

Profile of Tifton loamy sand, 2 to 5 percent slopes (in a moist, wooded area 0.5 mile south of Goose Creek and 1 mile west of Georgia Highway 169)—

A1—0 to 5 inches, dark grayish-brown (10YR 4/2) loamy sand; weak, fine, granular structure; very friable; many iron concretions; very strongly acid; 4 to 10 inches thick; clear, wavy boundary.

A2—5 to 10 inches, very pale brown (10YR 7/3) loamy sand; weak, medium, granular structure; very friable; many iron concretions; very strongly acid; 4 to 8 inches thick; clear, wavy boundary.

B1—10 to 16 inches, yellowish-brown (10YR 5/6) sandy loam; weak, medium, subangular blocky structure; very friable; many iron concretions; very strongly acid; 4 to 10 inches thick; gradual, wavy boundary.

B2—16 to 36 inches, yellowish-brown (10YR 5/8) sandy clay; moderate, medium, subangular blocky structure; friable; many iron concretions; very strongly acid; 12 to 24 inches thick; gradual, wavy boundary.

B3—36 to 54 inches, yellowish-brown (10YR 5/6) sandy clay loam with common, medium, distinct mottles of brown (10YR 5/3) and red (10R 4/6); moderate, medium, subangular blocky structure; friable; soft iron concretions; very strongly acid; 10 to 20 inches thick; gradual, wavy boundary.

C—54 to 60 inches +, brownish-yellow (10YR 6/8) sandy clay loam with many, medium, prominent mottles of light yellowish brown (2.5Y 6/4) and red (2.5YR 5/6); moderate, medium, subangular blocky structure; friable; very strongly acid.

GOLDSBORO AND IRVINGTON SOILS

The Goldsboro and Irvington soils are classified as Red-Yellow Podzolic soils, but they are less well drained than is typical for the group. These soils are similar in their surface layers and are mottled in the lower part of the B horizon and in the C horizon. The presence of mottling at a lesser depth indicates that aeration is restricted somewhat more in the Goldsboro and Irvington soils than in the Tifton and Norfolk soils. Unlike the Goldsboro soils, Irvington soils have many concretions of iron throughout their profile. Also, the Irvington soils have a well-defined, firm layer (fragipan) at a depth of about 2 feet.

Profile of Goldsboro loamy sand, thick surface, 0 to 2 percent slopes (in a moist, cultivated field 400 yards west of Empire School)—

Ap—0 to 8 inches, dark grayish-brown (2.5Y 4/2) loamy sand; weak, fine, granular structure; very friable; very strongly acid; 6 to 10 inches thick; abrupt, wavy boundary.

A2—8 to 12 inches, pale-yellow (2.5Y 8/4) loamy sand; weak, fine, granular structure; very friable; very strongly acid; 3 to 8 inches thick; gradual, wavy boundary.

A3—12 to 20 inches, light brownish-yellow (10YR 6/4) loamy sand; weak, fine, granular structure; friable; very strongly acid; 8 to 12 inches thick; gradual, wavy boundary.

B2—20 to 24 inches, brownish-yellow (10YR 6/8) sandy clay loam; moderate, medium, subangular blocky structure; friable; few iron concretions; very strongly acid; 3 to 8 inches thick; gradual, wavy boundary.

B3—24 to 36 inches, brownish-yellow (10YR 6/6) sandy clay loam with common, medium, distinct mottles of strong brown (7.5YR 5/8); moderate, medium, subangular blocky structure; friable; few iron concretions; very strongly acid; 8 to 14 inches thick; gradual, wavy boundary.

C—36 to 48 inches +, light-gray (10YR 7/2) sandy clay with many, medium, prominent mottles of yellowish brown (10YR 5/8) and red (2.5YR 4/8); moderate, medium, subangular blocky structure; friable; few soft concretions of iron; very strongly acid.

Profile of Irvington loamy sand, thick surface, 0 to 2 percent slopes (in a moist, wooded area 2 miles southeast of Odum and 1 mile north of Bethel Church)—

A1—0 to 5 inches, dark grayish-brown (10YR 4/2) loamy sand; weak, fine, granular structure; very friable; many roots; iron concretions; very strongly acid; 4 to 7 inches thick; clear, wavy boundary.

A2—5 to 10 inches, pale-brown (10YR 6/3) to gray (10YR 6/1) loamy sand; weak, fine, granular structure; very friable; few small iron concretions; very strongly acid; 4 to 7 inches thick; clear, wavy boundary.

AB—10 to 25 inches, yellowish-brown (10YR 5/6) loamy sand with few, medium, faint mottles of light brownish gray (10YR 6/2) beginning at a depth of 20 inches; weak, medium, granular structure; very friable; few iron concretions; very strongly acid; 10 to 16 inches thick; gradual, wavy boundary.

B2m—25 to 31 inches, yellowish-brown (10YR 5/6) sandy clay loam with few, medium, faint mottles of brownish yellow (10YR 6/8) and strong brown (7.5YR 5/8); weak, medium, subangular blocky structure; friable; many iron concretions that are weakly cemented; very strongly acid; layer ranges from 5 to 8 inches in thickness; gradual, wavy boundary.

C—31 to 46 inches +, yellowish-brown (10YR 5/8) sandy clay loam with many, medium, distinct mottles of very pale brown (10YR 7/4), strong brown (7.5YR 5/8), and yellowish red (5YR 4/8); weak, medium, subangular blocky structure; friable; few iron concretions; very strongly acid.

GILEAD AND SAWYER SOILS

The Gilead soils are better drained than the Sawyer soils, but the surface layers of the two soils are similar. The Gilead soils have a dark yellowish-brown to yellowish-brown, firm sandy clay loam to sandy clay subsoil that is prominently mottled with gray and red in the lower part.

Also, Gilead soils generally have many quartz grains throughout their profile. The Sawyer soils are thinner and finer textured in the subsoil than the Gilead soils and, in the lower part, are reticulately mottled with yellowish brown, red, light yellowish brown, and gray.

Profile of Gilead loamy sand in Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes (in a moist, wooded area 2 miles northeast of Friendship Church)—

A1—0 to 3 inches, very dark grayish-brown (10YR 3/2) loamy sand; structureless; loose; few quartz grains and iron concretions; very strongly acid; 3 to 6 inches thick; clear, smooth boundary.

A2—3 to 15 inches, light yellowish-brown (10YR 6/4) sand; structureless; loose; few quartz grains and iron concretions; very strongly acid, 6 to 16 inches thick; clear, smooth boundary.

B1—15 to 23 inches, dark yellowish-brown (10YR 4/4) sandy clay loam to sandy clay; moderate, medium, subangular blocky structure; firm; small quartz grains are common; very strongly acid; 6 to 10 inches thick; clear, wavy boundary.

B2—23 to 37 inches, yellowish-brown (10YR 5/8) sandy clay with many, coarse, prominent mottles of gray (N 6/0) and red (2.5YR 5/6); moderate, medium, subangular blocky structure; firm; small quartz grains are common; very strongly acid; 14 to 26 inches thick; clear, wavy boundary.

B3—37 to 60 inches +, red (10R 4/6) sandy clay with common, medium, distinct mottles of light gray (10YR 7/1) and brownish yellow (10YR 6/8); moderate, medium, subangular blocky structure; firm; small quartz grains are common; very strongly acid.

Profile of Sawyer loamy sand in Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes (in a moist area 0.75 mile east of Madray Springs)—

A1—0 to 4 inches, dark grayish-brown (2.5Y 4/2) loamy sand; weak, fine, granular structure; very friable; few quartz grains and iron concretions; strongly acid; 3 to 6 inches thick; clear, smooth boundary.

A2—4 to 10 inches, light olive-brown (2.5Y 5/4) loamy sand; weak, fine, granular structure; very friable; strongly acid; 3 to 10 inches thick; thin, discontinuous layer of iron pebbles along the boundary; abrupt, smooth boundary.

B21—10 to 16 inches, yellowish-brown (10YR 5/6) sandy clay; weak, medium, subangular blocky structure; firm; strongly acid; 3 to 8 inches thick; abrupt, smooth boundary.

B22—16 to 28 inches, sandy clay; pockets of clay reticulately mottled with yellowish brown (10YR 5/6), red (2.5YR 4/8), and light yellowish brown (2.5Y 6/4); moderate, medium, subangular blocky structure; firm to very firm; very strongly acid; 8 to 14 inches thick; gradual, irregular boundary.

D—28 to 40 inches +, clay reticulately mottled with yellowish brown (10YR 5/6), red (2.5YR 4/8), light yellowish brown (2.5Y 6/4), and pale olive (5Y 6/3); moderate, medium, angular blocky structure; very firm; very strongly acid.

DUNBAR, EULONIA, AND LYNCHBURG SOILS

The Dunbar, Eulonia, and Lynchburg soils are Red-Yellow Podzolic soils that grade toward Low-Humic Gley soils. They have dark surface layers and are strongly gleyed below a depth of about 30 inches. The Dunbar and Lynchburg soils are somewhat poorly drained and have rather weak A2 horizons. Their B horizons are prominently mottled with yellowish brown, yellow, and gray. The B horizon of the Dunbar soils, however, contains red splotches and is finer textured than that of the Lynchburg soils.

The Dunbar and Eulonia soils have similar surface layers, but the Eulonia soils are moderately well drained, and the Dunbar soils are somewhat poorly drained. The Eulonia soils have a yellow or yellowish-brown subsoil with red mottles in the lower part. Field studies of Eulonia soils indicate that their solum has formed in material that is distinctly different from the plastic clay and sandy clay that underlie it.

Profile of Dunbar fine sandy loam, 0 to 2 percent slopes (in a moist, wooded area 7 miles south of Mount Pleasant and 1 mile west of a post road)—

A1—0 to 6 inches, very dark gray (N 3/0) fine sandy loam; weak, medium, crumb structure; very friable; many roots; very strongly acid; 4 to 7 inches thick; clear, smooth boundary.

A2—6 to 15 inches, pale-yellow (2.5Y 8/4) fine sandy loam; few reddish-yellow (7.5YR 6/8) root stains; weak, medium, crumb structure; very friable; very strongly acid; 8 to 11 inches thick; clear, smooth boundary.

B1—15 to 22 inches, yellowish-brown (10YR 5/8) sandy clay loam with few, fine, faint mottles of yellow (10YR 7/6); weak, medium, subangular blocky structure; friable; very strongly acid; 4 to 10 inches thick; gradual, wavy boundary.

B2g—22 to 30 inches, mottled gray (5Y 6/1), yellowish-brown 10YR 5/8), and red (10R 4/6) sandy clay; mottles are many, medium, and prominent; moderate, medium, subangular blocky structure; firm; very strongly acid; 8 to 20 inches thick; gradual, wavy boundary.

B3g—30 to 48 inches +, mottled gray (N 5/0), strong-brown (7.5YR 5/8), and red (10R 4/6) clay; mottles are many, coarse, and prominent; moderate, medium, angular blocky structure; very firm; free water; very strongly acid.

Profile of Eulonia loamy fine sand, 0 to 2 percent slopes (in a moist, wooded area 9 miles south of Mount Pleasant and 2.5 miles southwest of Hopewell Church)—

A1—0 to 5.5 inches, dark grayish-brown (2.5Y 4/2) loamy fine sand; weak, fine, granular structure; very friable; many roots; very strongly acid; 4 to 8 inches thick; clear, wavy boundary.

A2—5.5 to 8 inches, light yellowish-brown (2.5Y 6/4) loamy fine sand; few root channels of dark gray (N 4/0); weak, granular structure; very friable; very strongly acid; 2 to 10 inches thick; clear, smooth boundary.

B1—8 to 18 inches, yellow (10YR 7/6) fine sandy loam; weak, medium, crumb structure; friable; very strongly acid; 6 to 10 inches thick; clear, wavy boundary.

B2b—18 to 23 inches, yellow (2.5Y 7/6) light sandy clay loam with many, common, distinct mottles of red (2.5YR 4/6) and brownish yellow (10YR 6/6); weak, medium, subangular blocky structure; friable; very strongly acid; 4 to 8 inches thick; abrupt, smooth boundary.

Cb—23 to 48 inches +, mottled light-gray (N 7/0), red (2.5YR 4/6), and brownish-yellow (10YR 6/8) sandy clay; mottles are many, coarse, and prominent; moderate, medium, subangular blocky structure; firm; very strongly acid.

Profile of Lynchburg loamy sand, thick surface, 0 to 2 percent slopes (in a moist, cultivated field 6 miles southeast of Odum and 1 mile south of Old Bethel Church)—

A1p—0 to 9 inches, very dark grayish-brown (2.5Y 3/2) loamy sand; weak, fine, granular structure; very friable; many roots; very strongly acid; 8 to 10 inches thick; abrupt, smooth boundary.

A2—9 to 14 inches, light yellowish-brown (2.5Y 6/4) loamy sand with splotches of yellowish brown (10YR 5/6); weak, fine, crumb structure; very friable; very strongly acid; 5 to 10 inches thick; gradual, smooth boundary.

A3—14 to 20 inches, light yellowish-brown (2.5Y 6/4) loamy sand with few, fine, faint mottles of strong brown (7.5YR 5/8) and yellowish brown (10YR 5/6); weak, fine, granular structure; very friable; very strongly acid; 5 to 10 inches thick; gradual, smooth boundary.

B1—20 to 28 inches, light yellowish-brown (2.5Y 6/4) sandy loam with common, coarse, distinct mottles of light

gray (2.5Y 7/2) and yellowish brown (10YR 5/6); weak, fine, granular structure; friable; few soft concretions of iron; very strongly acid; 6 to 12 inches thick; gradual, smooth boundary.

B2—28 to 42 inches +, light-gray (2.5Y 7/2) sandy clay loam with many, coarse, prominent mottles of yellowish brown (10YR 5/8) and red (2.5YR 4/8); moderate, medium, subangular blocky structure; friable; few iron concretions; very strongly acid.

SUSQUEHANNA AND SUNSWEET SOILS

The Susquehanna and Sunsweet soils are Red-Yellow Podzolic soils that grade toward Regosols. The Susquehanna soils were derived chiefly from thick beds of acid clay. They have a thin surface layer, a weak A2 horizon, and a thin B horizon of sandy clay or clay mottled with red and brownish yellow. The Cg horizon is clay reticulately mottled with gray, brownish yellow, and red. Most areas of the Susquehanna soils in Wayne County are underlain by rock at a depth of about 2 feet.

The Sunsweet soils are better drained and coarser textured than the Susquehanna soils. They were formed from reticulately mottled, lateritic sandy clay. Sunsweet soils have a thin solum; a hard and compact, reticulately mottled C horizon; and an abundance of hard concretionary pebbles at the surface and throughout the A and B horizons. The B horizon is thin where it occurs, but it is absent in some places.

The classification of Susquehanna and of Sunsweet soils as Red-Yellow Podzolic soils is questionable because the horizons in these soils are indistinct. The B horizon is poorly expressed, at best, and it may be so faint that there is doubt that it is a B horizon.

Profile of Susquehanna loamy sand, shallow, 2 to 8 percent slopes (in a moist, wooded area 1 mile south of the confluence of Fivemile Creek and the Altamaha River)—

A1—0 to 4 inches, very dark gray (10YR 3/1) loamy sand; weak, medium, granular structure; very friable; strongly acid; 2 to 6 inches thick; gradual, wavy boundary.

A2—4 to 10 inches, pale-yellow (2.5Y 7/4) loamy sand with few, fine, faint mottles of brownish yellow (10YR 6/8) in the lower part; weak, medium, granular structure; very friable; strongly acid; 4 to 12 inches thick; gradual, wavy boundary.

B—10 to 16 inches, red (2.5YR 5/8) sandy clay with many, fine, distinct mottles of brownish yellow (10YR 6/8); moderate, medium, subangular blocky structure; friable; strongly acid; 4 to 10 inches thick; gradual, wavy boundary.

Cg—16 to 24 inches, gray (5Y 6/1) clay reticulately mottled with brownish yellow (10YR 6/8) and red (10R 4/8); mottles are many, medium, and prominent; moderate, medium, angular blocky structure; firm; strongly acid; 8 to 16 inches thick; abrupt, smooth boundary.

D—24 inches +, sandstone ledge.

Profile of Sunsweet sandy loam in Sunsweet soils, 5 to 12 percent slopes, eroded (in a moist pasture 8 miles north of Blanton Grove Church of God)—

A1—0 to 3 inches, very dark grayish-brown (10YR 3/2) sandy loam; weak, fine, crumb structure; very friable; many hard, concretionary pebbles and a few quartz pebbles; very strongly acid; 2 to 7 inches thick; clear, wavy boundary.

A3—3 to 6 inches, dark-brown (7.5YR 4/4) sandy loam; weak, medium, crumb structure; very friable; many hard concretionary pebbles and a few quartz pebbles; very strongly acid; 2 to 5 inches thick; clear, wavy boundary.

B—6 to 9 inches, red (2.5YR 4/6) sandy clay loam; weak, medium, subangular blocky structure; friable; few pebbles; very strongly acid; 2 to 12 inches thick; gradual, wavy boundary.

C1—9 to 26 inches, yellowish-red (5YR 5/6) sandy clay loam reticulately mottled with red (10R 4/8), yellow (10YR 7/6), and light gray (5YR 7/1); mottles are many, coarse, and prominent; moderate, medium, subangular blocky structure; firm; few quartz pebbles; very strongly acid; 14 to 20 inches thick; gradual, wavy boundary.

D1—26 to 38 inches, light-gray (5YR 7/1) sandy clay loam reticulately mottled with reddish yellow (7.5YR 7/6) and red (10R 4/8); mottles are many, coarse, and prominent; clay films of reddish yellow (5YR 7/8); moderate, medium, subangular blocky structure; firm; quartz grains common; very strongly acid; 10 to 15 inches thick; gradual, wavy boundary.

D2—38 to 70 inches +, red (10R 4/8) coarse sandy loam reticulately mottled with reddish yellow (7.5YR 7/6) and light gray (5YR 7/1); mottles are many, coarse, and prominent; clay films of reddish yellow (5YR 7/8); weak, medium, subangular blocky structure; friable; quartz grains common; very strongly acid.

WAHEE SOILS

The Wahee soils are Red-Yellow Podzolic soils that have an argipan and, therefore, intergrade toward Planosols. The materials in which Wahee soils formed have been washed mainly from soils of the Coastal Plain but partly from the Piedmont uplands. These soils are moderately well drained or somewhat poorly drained. They have a grayish-brown to light yellowish-brown fine sandy loam surface layer that is abruptly underlain by light yellowish-brown sandy clay loam or sandy clay. Mottles, commonly of yellowish brown, brownish yellow, and gray, are at a depth of 12 to 22 inches.

Profile of Wahee fine sandy loam (in a moist, wooded area 3 miles east of Bethlehem Church and 2 miles northwest of the confluence of Penholloway Creek and the Old River)—

A1—0 to 9 inches, grayish-brown (2.5Y 5/2) fine sandy loam; weak, fine, granular structure; very friable; very strongly acid; 7 to 10 inches thick; gradual, wavy boundary.

A3—9 to 13 inches, light yellowish-brown (2.5Y 6/4) fine sandy loam; weak, medium, granular structure; friable; very strongly acid; 3 to 6 inches thick; gradual, wavy boundary.

B1—13 to 16 inches, light yellowish-brown (2.5Y 6/4) sandy clay loam; weak, medium, subangular blocky structure; friable; very strongly acid; 2 to 6 inches thick; gradual, wavy boundary.

B2—16 to 28 inches, yellowish-brown (10YR 5/6) sandy clay with few, medium, faint mottles of brownish yellow (10YR 6/8) and light gray (10YR 6/1); weak, medium, subangular blocky structure; firm; very strongly acid; 6 to 14 inches thick; gradual, wavy boundary.

B3—28 to 40 inches, yellowish-brown (10YR 5/6) sandy clay with few, coarse, faint mottles of brownish yellow (10YR 6/8) and light gray (10YR 6/1); weak, medium, angular blocky structure; firm; very strongly acid; 10 to 16 inches thick; gradual, wavy boundary.

C—40 to 48 inches +, brownish-yellow (10YR 6/8) sandy clay with few, coarse, faint mottles of light gray (10YR 7/1); massive (structureless); very firm; very strongly acid.

Humic Gley soils

The Humic Gley great soil group is made up of poorly drained and very poorly drained, hydromorphic soils. These soils have a moderately thick, dark-colored, organic-mineral A1 horizon that is underlain by gleyed mineral horizons. The soils occur under swamp-forest vegetation in a humid or subhumid climate. The Humic Gley soils

are generally medium acid to mildly alkaline, but some are strongly acid (*5*).

RUTLEGE, PORTSMOUTH, AND BAYBORO SOILS

The Rutlege, Portsmouth, and Bayboro soils are the Humic Gley soils in this county. These soils formed in extremely wet swamps and are mostly very strongly acid. They normally have black surface layers and are less leached but more strongly gleyed than the related, better drained soils. Horizons are indistinct in the profiles except at the juncture of the organic-mineral and the mineral layers. The water table fluctuates but is high most of the time. These soils generally reflect the ponded conditions under which they formed.

The Rutlege soils are typical Humic Gleys. They have developed in beds of sand and loamy sand. Portsmouth soils are similar to Rutlege soils in drainage and color but have a finer textured subsoil. The Portsmouth soils have formed in medium-textured material.

The Bayboro soils are also similar to the Rutlege soils in color and drainage but are much finer textured throughout the profile. Bayboro soils have developed in beds of marine clay or fine sandy clay.

Profile of Rutlege sand (in a wet, wooded area 3 miles south of Grangerville Station and 100 yards east of dirt road near Big Cypress Swamp)—

A1—0 to 12 inches, black (N 2/0) sand; structureless; nonsticky; high in organic-matter content; many roots; extremely acid; 8 to 25 inches thick; clear, smooth boundary.
AC—12 to 19 inches, grayish-brown (2.5Y 5/2) sand with few, fine, faint mottles of white (2.5Y 8/2); structureless; nonsticky; extremely acid; 4 to 12 inches thick; clear, smooth boundary.
C1g—19 to 31 inches, light-gray (5Y 7/1) sand; structureless; nonsticky; extremely acid; 10 to 15 inches thick; gradual, wavy boundary.
C2g—31 to 40 inches, gray (5Y 5/1) sand; tightly packed (slightly cemented); structureless; nonsticky; extremely acid; 4 to 25 inches thick; gradual, wavy boundary.
Dg—40 to 54 inches +, dark-gray (10YR 4/1) loamy sand; lightly compacted; weak, fine, granular structure; nonsticky; extremely acid.

Profile of Portsmouth loam (in a moist, wooded area 2 miles east of Broadhurst on the road to Gardi)—

A11—0 to 13 inches, black (5Y 2/1) loam; moderate, medium, crumb structure; friable; extremely acid; 8 to 15 inches thick; gradual, wavy boundary.
A12—13 to 21 inches, black (N 2/0) loam; moderate, medium, granular structure; friable; extremely acid; 4 to 9 inches thick; gradual, wavy boundary.
B1g—21 to 25 inches, dark-gray (N 4/0) fine sandy clay loam with few, medium, faint, gray (N 5/0) mottles; few, thin, light-gray (N 7/0) lenses of sand; medium, angular blocky structure to massive (structureless); firm; extremely acid; 3 to 6 inches thick; gradual, wavy boundary.
B2g—25 to 36 inches, dark-gray (N 4/0) clay loam with few, medium, faint, gray (N 5/0) mottles; few, thin, light-gray (N 7/0) lenses of sand; weak, coarse, angular blocky structure to massive (structureless); very firm; extremely acid; 10 to 20 inches thick; gradual, wavy boundary.
Cg—36 to 48 inches +, dark-gray (N 4/0) fine sandy clay loam with common, medium, distinct mottles of gray (N 5/0) and yellowish brown (10YR 5/8); moderate, medium, subangular blocky structure; very firm; extremely acid.

Profile of Bayboro loam (in a moist, wooded area 1 mile west of a post road and 2 miles north of the Brantley County line)—

A—0 to 5 inches, black (N 2/0) loam; weak, fine, crumb structure; friable; thick mat of roots; very strongly acid; 4 to 12 inches thick; clear, smooth boundary.
B1g—5 to 26 inches, very dark gray (N 3/0) clay with few, fine, distinct mottles of olive (5Y 5/6); moderate, medium, angular blocky structure; firm; medium acid; 16 to 22 inches thick; gradual, smooth boundary.
B2g—26 to 54 inches +, dark-gray (5Y 4/1) clay with few, fine, distinct mottles of olive (5Y 5/6); strong, angular blocky structure to massive (structureless); very firm; slightly acid.

Low-Humic Gley soils

Low-Humic Gley soils are somewhat poorly drained or poorly drained and have a thin surface layer that is moderately high in organic-matter content. This layer is underlain by gleylike, mineral horizons that are mottled with gray and brown and differ little in texture. These soils range from sand to clay, and their parent materials vary widely in physical and chemical properties. Low-Humic Gley soils occur largely under swamp vegetation or under forest of water-tolerant trees. They are generally medium acid to very strongly acid (*5*).

In this county the Bladen, Coxville, Meggett, Weston, Rains, Grady, and Plummer soils belong to the Low-Humic Gley great soil group. These soils formed where they were alternately saturated by ground water and dried out. A small amount of organic matter, generally 1.5 to 5.0 percent of the soil material, has accumulated in the A horizon. These soils are more leached than the Humic Gley soils, which they closely resemble.

Iron and other minerals form oxides during periods when these soils are well aerated. The subsoil is faintly to prominently mottled with streaks and spots of red, yellow, or brown, but the matrix of the soils is dominantly gray. The exchange capacity is low, and in most places the base saturation is less than 30 percent. Laboratory analyses reveal that there has been a downward movement of iron within the soil profiles.

BLADEN, COXVILLE, AND MEGGETT SOILS

The Bladen, Coxville, and Meggett soils were formed from fine-textured marine sediments. Bladen soils are slightly less well drained than the Coxville soils, occupy lower positions, and have a less firm and more plastic subsoil. Mottles in the Coxville soils are more numerous and prominent than those in the Bladen soils and generally are red instead of olive and yellow.

The Meggett soils resemble the Bladen soils in many properties, but they are alkaline or calcareous in the subsoil and overlie marl or other calcareous material.

Profile of Bladen sandy loam in the Bladen-Coxville-Weston complex (in a moist, wooded area 3 miles east of Mount Pleasant)—

A1—0 to 6 inches, very dark gray (N 3/0) sandy loam; weak, fine, granular structure; friable; few grains of clean sand; many roots; very strongly acid; 4 to 7 inches thick; clear, wavy boundary.
A2—6 to 12 inches, gray (5Y 5/1) loamy sand with few, fine, faint mottles of dark gray (5Y 4/1) and olive (5Y 5/6); weak, fine, granular structure; very friable; many roots; very strongly acid; 4 to 7 inches thick; clear, wavy boundary.

B1g—12 to 15 inches, gray (N 5/0) sandy clay with many, medium, distinct mottles of brownish yellow (10YR 6/6) and dark gray (N 4/0); moderate, medium, subangular blocky structure; firm; sticky when wet; few faint clay films; very strongly acid; 2 to 5 inches thick; gradual, wavy boundary.

B2g—15 to 36 inches, gray (N 5/0) clay with many, medium, prominent mottles of brownish yellow (10YR 6/6) and dark gray (N 4/0); strong, medium, angular blocky structure; very firm; sticky when wet; clay films; very strongly acid; 15 to 30 inches thick; gradual, wavy boundary.

B3g—36 to 54 inches +, light-gray to gray (N 6/0) clay with common, medium, distinct mottles of brownish yellow (10YR 6/6) and dark gray (N 4/0); massive (structureless); very firm; clay films; medium acid.

Profile of Coxville loamy sand in the Bladen-Coxville-Weston complex (in a moist, wooded area 3 miles northeast of Mount Pleasant)—

A1—0 to 3 inches, dark-gray (5Y 4/1) loamy sand; weak, fine, granular structure; very friable; many roots; grains of clean sand; very strongly acid; 2 to 5 inches thick; clear, wavy boundary.

A2—3 to 7 inches, pale-yellow (2.5Y 7/4) loamy sand with few, fine, faint mottles of gray (N 6/0); weak, fine, granular structure; very friable; many roots; very strongly acid; 3 to 7 inches thick; clear, smooth boundary.

B1g—7 to 10 inches, pale-olive (5Y 6/4) sandy clay loam with common, medium, distinct mottles of light red (10R 6/6) and red (2.5YR 5/6); friable; faint clay films; 2 to 5 inches thick; very strongly acid; clear, smooth boundary.

B21g—10 to 28 inches, olive-gray (5Y 5/2) clay reticulately mottled with red (7.5R 5/8) and yellow (10YR 7/8); strong, coarse, angular blocky structure; very firm; clay films; very strongly acid; 16 to 20 inches thick; clear, smooth boundary.

B22g—28 to 54 inches +, light-gray to gray (5Y 6/1) sandy clay with common, medium, distinct mottles of brownish yellow (10YR 6/8) and red (2.5YR 5/6); massive (structureless); very firm; medium acid.

Profile of Meggett sandy loam in Meggett soils (in a moist, wooded area 2.5 miles south of Hopewell Church and 0.5 mile west of the Glynn County line)—

A1—0 to 3 inches, very dark gray (N 3/0) sandy loam; weak, fine, crumb structure; very friable; many roots; medium acid; 3 to 6 inches thick; clear, wavy boundary.

A2—3 to 8 inches, gray (10YR 6/1) sandy loam; weak, medium, crumb structure; very friable; medium acid; 4 to 8 inches thick; clear, wavy boundary.

B1g—8 to 12 inches, dark-gray (N 4/0) sandy clay loam with few, fine, faint mottles of light gray (10YR 6/1); weak, medium, subangular blocky structure; friable; medium acid; 3 to 7 inches thick; clear, smooth boundary.

B2g—12 to 24 inches, gray (N 5/0) clay with common, medium, distinct mottles of olive (5Y 5/6); moderate, medium, angular blocky structure; firm; mildly alkaline; 10 to 16 inches thick; gradual, wavy boundary.

B3g—24 to 54 inches +, gray (N 5/0) clay with common, medium, distinct mottles of olive (5Y 5/6); moderate, medium, angular blocky structure; firm; many light-gray (N 7/0), small, concretionary pebbles (marl); strongly alkaline.

WESTON AND RAINS SOILS

The Weston and Rains soils have formed in beds of stratified sand, sandy clay, and clay. The Weston soils are similar to the Rains soils in many characteristics but are finer textured in the subsoil. The subsoil of the Weston soils ranges from sandy clay to clay and contains prominent lenses of sand, but that of the Rains soils is generally sandy clay loam and has few or no sand lenses.

Profile of Weston loamy sand in Weston soils (in a moist, wooded area 3.5 miles northeast of Mount Pleasant, near the Glynn County line)—

A1—0 to 4 inches, black (10YR 2/1) loamy sand; weak, fine, granular structure; friable; few grains of clear sand; extremely acid; 3 to 5 inches thick; clear, smooth boundary.

A2—4 to 11 inches, gray (10YR 5/1) loamy sand with few, fine, faint mottles of pale olive (5Y 6/4) and dark gray (N 4/0); weak, fine, granular structure; friable; very strongly acid; narrow pockets of sand that are as deep as 17 inches in some places; horizon 4 to 8 inches thick; clear, irregular boundary.

A3g—11 to 15 inches, gray (10YR 5/1) light sandy loam with common, medium, distinct mottles of strong brown (7.5YR 5/6); weak, fine, granular structure; friable; very strongly acid; 2 to 5 inches thick; clear, smooth boundary.

B2g—15 to 54 inches +, gray (N 5/0) clay with many, medium, prominent mottles of strong brown (7.5YR 4/6); moderate, medium, subangular blocky structure; firm; light-gray (N 7/0) lenses of sand with few, medium, distinct mottles of dark gray (N 4/0); structureless; loose; very strongly acid.

Profile of Rains loamy sand, thick surface (in a wet, wooded area 3.5 miles southwest of Odum and 100 yards west of the intersection of Mallard break and Mallard road)—

A1—0 to 4 inches, dark-gray (5Y 4/1) loamy sand; weak, fine, granular structure; nonsticky; very strongly acid; 4 to 8 inches thick; clear, smooth boundary.

A2—4 to 18 inches, gray (N 5/0) loamy sand; weak, fine, granular structure; nonsticky; very strongly acid; 13 to 22 inches thick; clear, smooth boundary.

A3—18 to 24 inches, gray (N 5/0) sandy loam with common, medium, distinct mottles of brownish yellow (10YR 6/8); weak, medium, subangular blocky structure; slightly sticky; very strongly acid; 4 to 8 inches thick; gradual, smooth boundary.

B2g—24 to 44 inches, gray (N 6/0) sandy clay loam with common, medium, distinct mottles of brownish yellow (10YR 6/8); moderate, medium, subangular blocky structure; sticky; very strongly acid; 12 to 25 inches thick; gradual, smooth boundary.

B3g—44 to 54 inches +, gray (N 6/0) sandy clay loam with many, coarse, distinct mottles of brownish yellow (10YR 6/8) and pale yellow (2.5Y 8/4); moderate, medium, subangular blocky structure; sticky; very strongly acid.

PLUMMER AND GRADY SOILS

Plummer soils and Grady soils formed in different kinds of parent material and differ from each other in several characteristics. Plummer soils formed in beds of acid sand and loamy sand over finer textured sediments that extend to a depth of several feet. Grady soils formed in marine sediments. Plummer soils are slightly better drained than the Grady soils and have a thinner, lighter colored A1 horizon. In addition, Plummer soils lack the B horizon of clay accumulation that is normal in Grady soils.

Profile of Plummer sand (in a moist, wooded area 6 miles southwest of Odum and 3 miles west of Dry Creek)—

A1—0 to 5 inches, dark-gray (N 4/0) sand, structureless; loose; numerous roots; very strongly acid; 2 to 8 inches thick; gradual, wavy boundary.

ACg—5 to 40 inches, gray (5Y 5/1) sand with few, fine, faint mottles of pale yellow (5Y 7/3); structureless; loose; many roots; very strongly acid; 28 to 48 inches thick; gradual, wavy boundary.

Dg—40 to 50 inches +, brownish-yellow (10YR 6/8) heavy sandy loam with many, coarse, prominent mottles of gray or light gray (N 6/0); weak, medium, granular structure; slightly sticky when wet, friable when moist; very strongly acid.

Profile of Grady loam (in a moist, wooded area 3 miles northwest of Screven Church of God)—

A11—0 to 5 inches, black (N 2/0) loam; weak, fine, subangular blocky structure; friable; many roots; extremely acid; 4 to 8 inches thick; clear, smooth boundary.
A12—5 to 7 inches, dark-gray (N 4/0) sandy loam; weak, fine, subangular blocky structure; friable; many roots; extremely acid; 2 to 4 inches thick; clear, smooth boundary.
B1g—7 to 12 inches, gray (N 5/0) sandy clay loam; weak, medium, subangular blocky structure; friable; many roots; very strongly acid; 5 to 11 inches thick; clear, smooth boundary.
B2g—12 to 23 inches, gray (N 5/0) clay; moderate, medium, angular blocky structure; firm; very strongly acid; 6 to 14 inches thick; clear, smooth boundary.
C1g—23 to 35 inches, gray (N 5/0) clay with few, fine, prominent mottles of red (7.5R 4/6) and yellowish brown (10YR 5/8); moderate, medium, angular blocky structure; firm; very strongly acid; 4 to 16 inches thick; gradual, wavy boundary.
C2g—35 to 44 inches +, gray (N 5/0) clay with few, fine, distinct mottles of light reddish brown (5YR 6/3); massive (structureless); very firm; very strongly acid.

Ground-Water Podzols

Ground-Water Podzols are somewhat poorly drained to very poorly drained, acid soils formed under forest and heath. The soils have an organic (AO) or an organic-mineral (A1) layer that overlies a light-colored, eluvial (A2) horizon. The A2 horizon is underlain by a dark-colored, illuvial B horizon in which the major accumulation is sesquioxides and organic matter. The accumulation may be largely organic matter, sesquioxides, or both. The A2 and B horizons vary considerably in thickness (*5*).

In general, soils of this group have a low base-exchange capacity. They are also very low in exchangeable bases and high in exchangeable hydrogen. The A2 horizon is leached and gleyed, is low in clay, and is high in siliceous materials. The water table is seasonally high but fluctuates sharply between wet and dry periods. The B horizon is commonly cemented, but it is friable in places. It contains little clay and is very strongly acid. The Leon, St. Johns, and Ona soils are the Ground-Water Podzols in Wayne County.

LEON, ST. JOHNS, AND ONA SOILS

The Leon soils are more nearly representative Ground-Water Podzols than the St. Johns and Ona soils. They formed in siliceous material under the influence of a high water table.

A black A1 horizon, and in many places a black AO horizon, distinguishes the more poorly drained St. Johns soils from the Leon soils, in which the A1 horizon is thin or missing. The A1 horizon of Ona soils is dark gray to very dark gray and is abruptly underlain by a friable B horizon that contains organic matter. Both Leon and St. Johns soils generally have a peaty AO horizon. Their A2 horizon is strongly gleyed, and their B horizon varies in thickness and is strongly cemented. The mineral horizons in Leon and St. Johns soils are structureless.

Organic matter in the lower horizons of the Leon, St. Johns, and Ona soils indicates that these horizons may have been inherited from underlying soil material. In many places Leon and Ona soils have developed in thin layers of siliceous material over more clayey material. In all of these soils siliceous material and a high water table appear to have dominated in development.

724-881—65——6

Profile of Leon sand (in a moist, wooded area 2.5 miles northwest of Union Baptist Church and 5 miles southeast of Gardi)—

A1—0 to 3 inches, dark-gray (N 4/0) sand; structureless; loose; many fine roots; very strongly acid; 2 to 5 inches thick; clear, wavy boundary.
A2—3 to 16 inches, white (N 8/0) sand; structureless; loose; very strongly acid; 9 to 20 inches thick; abrupt, wavy boundary.
B2h—16 to 20 inches, very dark brown (10YR 2/2) sand; weak, medium, subangular blocky structure; firm; weakly cemented with organic matter; hard when dry; very strongly acid; 3 to 10 inches thick; clear, irregular boundary.
B3—20 to 24 inches, grayish-brown (2.5Y 5/2) sand with common, medium, prominent mottles of dark brown (10YR 3/3); structureless; loose; very strongly acid; 3 to 15 inches thick; clear, wavy boundary.
C—24 to 40 inches +, light brownish-gray (2.5Y 6/2) sand; structureless; loose; very strongly acid.

Profile of St. Johns sand (in a moist, wooded area 1 mile east of Mount Pleasant)—

A1—0 to 6 inches, black (N 2/0) sand that feels loamy because of the high organic-matter content; structureless; loose; many roots; extremely acid; 4 to 8 inches thick; clear, smooth boundary.
A2—6 to 13 inches, gray (N 5/0) sand; structureless; loose; few roots; extremely acid; 5 to 18 inches thick; abrupt, smooth boundary.
B2h—13 to 19 inches, very dark grayish-brown (10YR 3/2) sand; weak, medium, subangular blocky structure; friable; slightly cemented; many roots at a depth of 13 inches; extremely acid; 4 to 8 inches thick; gradual, wavy boundary.
B3—19 to 50 inches +, very dark grayish-brown (10YR 3/2) sand with common, fine, faint mottles of brown (10YR 5/3); structureless; loose when dry, nonsticky when wet; free water at a depth of 30 inches; extremely acid.

Profile of Ona sand (in a moist, wooded area 6 miles north of Brentwood and 1 mile south of the Appling County line)—

A1—0 to 6 inches, dark-gray (N 4/0) sand; structureless; loose; extremely acid; 4 to 6 inches thick; clear, wavy boundary.
B2h—6 to 10 inches, dark-brown (10YR 4/3) sand with few, fine, faint mottles of light brownish gray (10YR 6/2); weak, medium, subangular blocky structure; friable; extremely acid; 4 to 6 inches thick; clear, wavy boundary.
C1—10 to 18 inches, light-gray (5Y 7/2) sand with many, medium, distinct mottles that are pale yellow (2.5Y 7/4) and brownish yellow (10YR 6/6); structureless; loose; very strongly acid; 8 to 10 inches thick; clear, wavy boundary.
C2—18 to 33 inches, pale-yellow (5Y 7/4) sand with many, medium, faint mottles of light gray (5Y 7/2); weak, medium, granular structure; very friable; extremely acid; 10 to 20 inches thick; clear, wavy boundary.
C3—33 to 36 inches, pale-yellow (2.5Y 7/4) loamy sand with many, medium, distinct mottles of yellow (2.5Y 7/6) and yellowish brown (10YR 5/8); weak, medium, granular structure; very friable; very strongly acid; 3 to 10 inches thick; clear, wavy boundary.
D1—36 to 48 inches, light yellowish-brown (2.5Y 6/4) sandy loam with many, medium, prominent mottles of light gray (5Y 7/2) and strong brown (7.5YR 5/8); weak, medium, subangular blocky structure; very friable; extremely acid; 10 to 14 inches thick; clear, wavy boundary.
D2—48 to 54 inches +, white (5Y 8/1) sandy loam with many, coarse, prominent mottles of pale yellow (2.5Y 7/4) and strong brown (7.5YR 5/8); weak, medium, subangular blocky structure; very friable; very strongly acid.

Regosols

Regosols are in the azonal order. They consist largely of recently deposited sand, of loess, or of glacial drift on steep slopes (*5*). Few clearly expressed soil characteristics have developed. Blanton, Klej, Lakeland, and Lakewood soils are the Regosols in the county. They formed in marine sands, which are generally inert and do not weather rapidly.

BLANTON, KLEJ, AND LAKELAND SOILS

The Blanton and Klej soils are similar in many respects. Blanton soils, however, are lighter colored throughout than Klej soils and lack the distinct or prominent mottles that are characteristic of those soils. Lakeland soils are better drained than Blanton soils and are yellower and contain more medium and coarse sand.

Profile of Blanton sand, 0 to 2 percent slopes (in a moist, idle field 100 yards behind Camelia Courts Motel on U.S. Highway No. 301)—

Ap—0 to 9 inches, gray (5Y 6/1) sand; structureless; loose; many roots; very strongly acid; 2 to 10 inches thick; clear, wavy boundary.
AC—9 to 28 inches, light-gray (5Y 7/2) sand with few, medium, faint mottles of yellow (10YR 7/8); structureless; loose; very strongly acid; 10 to 36 inches thick; gradual, wavy boundary.
C—28 to 48 inches +, white (5Y 8/1) sand; structureless; loose; extremely acid.

Profile of Klej sand, shallow, 0 to 2 percent slopes (in a moist, wooded area 5 miles north of Jesup and 2 miles west of U.S. Highway No. 301)—

A11—0 to 3 inches, dark grayish-brown (2.5Y 4/2) sand; structureless; loose; many roots; strongly acid; 3 to 5 inches thick; gradual, wavy boundary.
A12—3 to 10 inches, grayish-brown (2.5Y 5/2) sand; structureless; loose; very strongly acid; 7 to 10 inches thick; gradual, wavy boundary.
C1—10 to 27 inches, pale-yellow (2.5Y 8/4) sand with few, medium, faint mottles of white (2.5Y 8/2); mottles increase with depth; structureless; loose; strongly acid; 16 to 18 inches thick; gradual, wavy boundary.
C2—27 to 32 inches, pale-yellow (2.5Y 8/4) loamy sand with many, coarse, faint mottles of gray (N 5/0), yellow (2.5Y 7/6), and yellowish brown (10YR 5/6); weak, fine, granular structure; very friable; strongly acid; 4 to 8 inches thick; gradual, wavy boundary.
D1—32 to 36 inches, light yellowish-brown (2.5Y 6/4) sandy loam with many, medium, distinct mottles of yellowish brown (10YR 5/8); weak, fine, granular structure; friable; few soft concretions of iron; strongly acid; 4 to 6 inches thick; gradual, wavy boundary.
D2—36 to 54 inches +, yellowish-brown (10YR 5/8) sandy clay loam with many, coarse, prominent mottles of red (2.5YR 4/8), light gray (N 7/0), and brownish yellow (10YR 6/8); weak, medium, subangular blocky structure; friable; very strongly acid.

Profile of Lakeland sand, 0 to 5 percent slopes (in a moist, wooded area 2 miles north of Jesup and 150 yards west of U.S. Highway No. 301)—

A1—0 to 3 inches, dark-gray (N 4/0) sand; single grain (structureless); loose; strongly acid; 2 to 4 inches thick; abrupt, smooth boundary.
AC—3 to 36 inches, brownish-yellow (10YR 6/8) sand; single grain (structureless); loose; strongly acid; 28 to 60 inches thick; gradual, wavy boundary.
C—36 to 54 inches +, brownish-yellow (10YR 6/6) sand with common, medium, distinct mottles of light gray (N 7/0); single grain (structureless); loose; strongly acid.

LAKEWOOD SOILS

The Lakewood soils are Regosols that intergrade toward Podzols. They have a very weak B horizon and have formed in highly quartzose sand.

Profile of Lakewood coarse sand, 5 to 8 percent slopes (in a moist, wooded area 1 mile east of the Little Satilla River and 3 miles north of Georgia Highway 32 in Brantley County)—

A1—0 to 2 inches, gray (N 5/0) coarse sand; single grain (structureless); loose; many roots; very strongly acid; 1 to 4 inches thick; clear, smooth boundary.
A2—2 to 22 inches, white (N 8/0) coarse sand; single grain (structureless); loose; strongly acid; 18 to 30 inches thick; abrupt, irregular boundary.
B2h—22 to 23 inches, dark-brown (7.5YR 4/4) coarse sand; single grain (structureless); loose; strongly acid; ½ inch to 3 inches thick; abrupt, irregular boundary.
B3—23 to 54 inches, brownish-yellow (10YR 6/8) coarse sand with splotches of dark brown (7.5YR 4/4); single grain (structureless); loose; very strongly acid; 25 to 40 inches thick; clear, wavy boundary.
C—54 inches +, yellow (10YR 8/6) coarse sand; single grain (structureless); loose; very strongly acid.

General Nature of the County

This section tells about the organization and settlement of the county, the agriculture, the climate, the water supply, and other subjects of general interest.

Organization and Settlement

Wayne County was organized in 1803 on land acquired from the Creek Indians through the Treaty of Fort Wilkinson and was named after Gen. Anthony Wayne. At first it was a large county, but since 1829 several other counties have been formed entirely or partly from it. Early settlement was slow; there was no county seat until 1829, when one was established near Waynesville in what is now Brantley County. Jesup is now the county seat. Early settlers came principally from elsewhere in Georgia and from the Carolinas.

The first farms were mostly in the northwestern, north-central, and southwestern parts of the county. The principal crops were cotton, tobacco, corn, pecans, and truck crops, and the principal livestock was poultry, hogs, and beef cattle. Extracting turpentine and lumbering were important, especially in the eastern half of the county.

In 1880, the population of the county was 5,980. By 1960, the population had increased to 17,921, of which 59.2 was classified as rural.

Agriculture [7]

Many of the soils in Wayne County, particularly those in the northwestern and southwestern parts, are well suited to farming. In 1959, about 29 percent of the county, or 119,955 acres, was in farms. This farmland was distributed among 708 farms and averaged 169.4 acres per farm. The following shows how the land in farms was used in 1959.

[7] Statistics in this subsection are from the U.S. Census of Agriculture.

	Acres
Cropland, total	41, 851
Harvested	32, 381
Pastured	5, 728
Not harvested or pastured	3, 742
Woodland, total	70, 604
Pastured	14, 161
Not pastured	56, 443
Other pasture (not cropland and not woodland)	5, 567
Other land (house lots, roads, wasteland, etc.)	1, 933

The farms are of different kinds, as shown by the following, which lists by type the number of farms in the county in 1959.

	Number
Field-crop farms other than vegetable and fruit-and-nut	146
Tobacco	141
Cotton	5
Poultry farms	6
Dairy farms	6
Livestock farms other than poultry and dairy farms	114
General farms	117
Miscellaneous and unclassified farms	319

Table 10 gives acreages of the principal crops in 1954 and 1959, as reported in the U.S. Census of Agriculture. Corn, the most important crop in the county, is grown for food and for livestock feed on nearly all farms. Most farms have pastures, mainly of Coastal bermudagrass and bahiagrass. Many farmers grow oats as feed for livestock or as winter cover. Practically all farms have small fields of tobacco, the most important cash crop. Other important cash crops are cotton, watermelons, peanuts, and pecans. Almost all farmers grow fruits, berries, and many kinds of vegetables for home use, and a few farmers grow vegetables for sale.

TABLE 10.—*Acreage of the principal crops in 1954 and 1959*

Crops	1954	1959
	Acres	*Acres*
Corn for all purposes	22, 985	24, 051
Oats harvested	588	101
Peanuts for all purposes:		
Acres grown alone	501	244
Acres grown with other crops	3, 435	529
Hay crops, total	1, 434	1, 086
Coastal bermudagrass cut for hay	(1)	997
Tobacco harvested	1, 879	1, 318
Cotton harvested	2, 593	1, 706
Vegetables harvested for sale	1, 707	1, 000
Sweet corn	890	778
Watermelons	680	110
	Number	*Number*
Improved pecans (trees of all ages)	2, 979	2, 484
Wild and seedling pecans (trees of all ages)	538	2, 306

[1] Reported with other hay cut.

The livestock in Wayne County consists mainly of cattle, hogs, and poultry, and there are a few sheep and turkey. In 1959, the sale of livestock and livestock products furnished a large part of the farm income. Livestock totaled 9,250 cattle and calves, 22,482 hogs and pigs, 34,008 chickens 4 months old and older, 205 sheep and lambs, and 296 horses and mules. Only 95 turkey hens were kept for breeding and 686 turkeys were raised.

Water Supply

Most farms obtain water from wells drilled into water-bearing sand, for the county has no springs. Most of the wells are 30 to 70 feet deep and yield moderate amounts of water. In recent years a number of deep wells have been drilled to furnish water for domestic use, for livestock, and for irrigation. Also constructed were farm ponds that furnish water for irrigation, for livestock, and for fishing and other recreation. In addition, these ponds serve as reservoirs that reduce flood hazards. Many pits have been dug in recent years to furnish water for irrigation. These are described in the subsection "Features Affecting Engineering Work."

Transportation, Markets, and Industry

U.S. Highway No. 341 extends from east to west through the county, and U.S. Highway No. 301 extends from north to south. State Highways 23, 27, 38, 99, and 169 also pass through the county, and many county roads are serviceable throughout the year. Railroads that serve the county are the Atlantic Coast Line and the Southern Railway.

Markets are available in Jesup for corn, tobacco, and cotton. A State farmers market, just north of Jesup, is an outlet for many farmers' vegetables, melons, fruits, nuts, and other produce.

A large plant that manufactures cellulose is on the Altamaha River, just north of Jesup, and several smaller industrial plants are in Jesup, Odum, and Screven. Many people who work in these plants commute daily from nearby rural areas.

Community Facilities

Several grammar schools serve the county, and there is a high school at Jesup, at Odum, and at Screven. School buses transport students to and from school. The county has many Protestant churches.

Nearly all the farms in the county have electricity and telephones, and most homes have radios and television sets.

Climate [8]

This subsection discusses the climate of Wayne County and gives information that will help farmers plan their time for planting and for other activity. Much of the information is in tables. Table 11 shows, by months, data on the temperature and precipitation. Table 12 gives, by months, the average number of days that specified amounts of rainfall may be expected. Table 13 gives similar information for heavier rains. Table 14 lists the number of dry spells lasting 2, 4, and 6 weeks that have occurred each month in the year during a 10-year period. Table 15 gives the probability of the last freezing temperature in spring and the first freezing temperature in fall.

Because of its latitude and nearness to the warm waters of the Atlantic, Wayne County has warm, humid summers. Prolonged periods of extreme heat are unusual, however. An afternoon high of 90° F. or above occurs about 2 out

[8] By HORACE S. CARTER, State climatologist, U.S. Weather Bureau, University of Georgia, College of Agriculture, Athens, Ga.

TABLE 11.—*Temperature and precipitation of Wayne County, Ga.*

[Estimated from data of weather stations nearby]

Month	Temperature				Precipitation		
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with—		Average monthly total	One year in 10 will have—	
			Maximum temperature equal to or higher than	Minimum temperature equal to or lower than		Less than	More than
	°F	°F	°F	°F	*Inches*	*Inches*	*Inches*
January	63.5	41.7	77	26	2.75	0.8	4.5
February	65.5	42.8	80	27	3.16	1.1	6.2
March	70.8	47.4	85	31	4.01	1.2	8.5
April	78.5	54.7	88	42	3.70	1.2	5.5
May	85.6	62.3	94	51	3.21	1.1	6.7
June	90.9	68.8	100	62	4.83	2.0	8.2
July	91.4	71.0	99	67	6.75	2.9	9.8
August	90.9	70.7	97	65	5.45	2.4	8.3
September	86.4	67.1	95	59	5.40	1.9	11.0
October	79.1	57.0	88	43	2.62	.3	7.0
November	70.4	47.0	82	31	1.99	.5	5.2
December	63.5	40.9	77	26	2.86	.7	5.8
Year [1]	78.0	56.0	102	22	46.73	36.0	62.4

[1] Averages, maximums, or minimums for the year, as indicated in column headings.

TABLE 12.—*Average number of days, by month and the year, that had rainfall equal to or more than 0.10, 0.25, and 0.50 inch during period from 1951 through 1960* [1]

Rainfall equal to or more than—	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total days in year
Inches													
0.10	5	7	7	5	6	7	9	7	7	4	4	5	73
.25	3	5	5	4	5	5	7	5	5	3	2	4	53
.50	2	2	3	3	3	3	5	3	3	2	2	2	33

[1] Based on records for nearby stations.

TABLE 13.—*Total number of days, by month and the year, that had rainfall equal to or more than 1, 2, 3, and 4 inches during period from 1951 through 1960* [1]

Rainfall equal to or more than—	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total days in year
Inches													
1.00	4	9	12	16	11	16	16	15	16	6	5	7	133
2.00	0	2	0	3	0	5	7	3	7	1	1	0	29
3.00	0	0	0	0	0	1	2	1	1	0	0	0	5
4.00	0	0	0	0	0	0	0	0	1	0	0	0	1

[1] Based on records for nearby stations.

of 3 days from June through August, and a 100° temperature occurs, on the average, about 3 days per summer. Frequent afternoon showers moderate the temperature. Summer nights are usually pleasant because the temperature drops to the low seventies, and sometimes to below seventy early in the morning.

Winters in Wayne County are usually mild and fairly short. The cold air masses from the north are tempered considerably by the time they reach the county, and the resulting short periods of cold weather are followed by longer mild periods. Winters are not severe enough to damage the crops grown. Freezing temperatures can be expected every winter, but less than half the winters have a temperature as low as 20°. Even during the coldest periods the temperature rises above freezing during the day. Because winter is one of the driest seasons, outside activities are seldom interrupted. Spring and fall are generally mild and sunny. Changes in weather, however,

TABLE 14.—*Total number of 2-, 4-, and 6-week periods, by month, that had no days with precipitation of 0.25 inch or more during period from 1951 through 1960* [1]

Periods equal to or more than—	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total number of periods in 10 years
2 weeks [2]	5	4	3	5	7	5	3	5	9	8	7	8	69
4 weeks [2]	1	2	2	2	1	1	0	0	0	4	3	3	19
6 weeks [2]	0	1	1	0	0	0	0	0	0	0	2	0	4

[1] Based on records for nearby stations.
[2] Periods are listed in the month during which the greater part occurred.

TABLE 15.—*Probability of last freezing temperature in spring and first in fall in Wayne County, Ga.*

[Based on records of nearby weather stations]

Probability [1]	Spring			Fall		
	24° F. after—	28° F. after—	32° F. after—	24° F. before—	28° F. before—	32° F. before—
1 year in 10	Feb. 27	Mar. 13	Mar. 23	Nov. 25	Nov. 17	Nov. 10.
2 years in 10	Feb. 11	Mar. 3	Mar. 18	Nov. 30	Nov. 23	Nov. 13.
5 years in 10	Jan. 15	Feb. 17	Mar. 8	Dec. 18	Dec. 2	Nov. 24.

[1] Probability of freezes in spring after date indicated and in fall before date indicated.

are likely to occur more frequently in spring than in fall, and winds are stronger.

The average length of the growing season is about 260 days (*2*). On the average, the last freeze in spring occurs during the first week of March, and the first freeze in fall occurs during the last week of November.

The average annual rainfall in Wayne County is between 45 and 50 inches and is generally adequate for farming. Almost half the rainfall occurs from early in June through September, and heavy rains are more likely in this period. Thunderstorms are frequent in summer, and occasionally a tropical cyclone causes extremely heavy rainfall. During the past 10 years, three-fourths of the rainstorms that produced 2 inches or more of rain in 24 hours came in the period from June through September. Throughout the rest of the year, rainfall is fairly evenly distributed, but it is slightly greater in spring than in winter or late in autumn. Early in spring, planting is often delayed by wetness. Long dry periods are common in the area. Because these dry periods are likely in autumn and winter, only a few acres are planted to late-maturing crops. Although snow is rare in Wayne County, a fall of 3 inches was recorded at Jesup in February 1958.

Severe windstorms seldom occur in the county, but winds that accompany some of the heavy thunderstorms sometimes cause local damage. Only two tornado-type storms have been reported. The average hourly wind speeds range from slightly more than 7 miles per hour in July and August to more than 9 miles per hour from January through April. Prevailing winds are from the north in fall and winter and from the south in spring and summer.

The average relative humidity is fairly high in Wayne County. Monthly averages for early in the morning range from about 85 percent in spring to nearly 90 percent in autumn. Averages for early in the afternoon range from the low fifties in spring to about 60 percent in midsummer and early in autumn.

Because the growing season in this county is long, corn, cotton, peanuts, tobacco, watermelons, tomatoes, potatoes, beans, and other crops can be planted late and still have plenty of time to mature. The winters are mild enough to permit such small grains as oats and rye to be sown in autumn. If a small grain is seeded early, it provides grazing for livestock during winter, but its growth is slow from December through February. Normally, a low temperature does not last long enough in winter to provide the dormant period needed for wheat and peaches.

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Glossary

Acidity, soil. See Reaction.

Alluvium. Fine material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity. The difference between the amount of water in a soil at field capacity and the amount in the same soil at the permanent wilting point. Commonly expressed as inches of water per inch depth of soil.

Bay. A depressed, swampy area in which water-tolerant plants grow. Shallow water covers the surface intermittently.

Concretions. Hard grains, pellets, or nodules of various size, shape, and color, consisting of concretions of compounds that cement the soil grains together. The composition of some concretions is unlike that of the surrounding soil. Calcium carbonate, iron oxide, and manganese are examples of material commonly found in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Friable. When moist, soil crushes easily under gentle to moderate pressure between thumb and forefinger and can be pressed into a lump. Friable soils are easy to till.

Firm. When moist, soil crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable. Firm soils generally are difficult to till.

Hard. When dry, soil moderately resists pressure; can be broken with difficulty between thumb and forefinger.

Indurated. Very strongly cemented and brittle; does not soften under prolonged wetting.

Loose. Noncoherent; will not hold together in a mass. Loose soils are generally coarse textured and easy to till.

Plastic. When wet, soil is readily deformed by moderate pressure but can be pressed into a lump; forms a wire when rolled between thumb and forefinger. Plastic soils are high in clay and are difficult to till.

Soft. Weakly coherent and fragile; when dry, soil breaks into powder or individual grains under slight pressure.

Drainage, soil. The rapidity and extent of the removal of water from the soil, in relation to additions. Most water is removed by runoff, by flow through the soil to underground spaces, or by a combination of both processes.

Flood plain. Nearly level land that borders a stream; consists of stream sediments and is subject to flooding unless protected artificially.

Friable. See Consistence, soil.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes.

Infiltration. The downward entry of water into the immediate surface of the soil or other material, as contrasted with percolation, which is movement of water through soil layers or other material. The rate of infiltration is usually expressed in inches per hour.

Morphology, soil. The makeup of the soil, including the texture, structure, consistence, color, and other physical, chemical, mineralogical, and biological properties of the various horizons that make up the soil profile.

Mottled. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Overstory. The trees in a forest that form the upper crown cover. Contrasts with understory.

Parent material, soil. The horizon of weathered rock or partly weathered soil material from which the soil has formed; horizon C in the soil profile.

Permeability, soil. The quality of a soil horizon that enables air and water to move through it. Moderately permeable soils allow air and water to move readily and are favorable for the growth of roots. Slowly permeable soils allow water and air to move so slowly that the growth of roots may be restricted. In rapidly permeable soils, air and water move rapidly and roots make good growth.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material. See Horizon, soil.

Reaction. The degree of acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. In words, the degrees of acidity or alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Mildly alkaline	7.4–7.8
Very strongly acid	4.5–5.0	Moderately alkaline	7.9–8.4
Strongly acid	5.1–5.5	Strongly alkaline	8.5–9.0
Medium acid	5.6–6.0	Very strongly alkaline	9.1 and higher
Slightly acid	6.1–6.5		
Neutral	6.6–7.3		

Relief. The elevations or inequalities of the land surface, considered collectively.

Slope. The incline of the surface of a soil. It is usually expressed in percentage of slope, which equals the number of feet of fall per 100 feet of horizontal distance.

Soil. A natural, three-dimensional body on the earth's surface that supports plants. Soil has properties resulting from the integrated effect of climate and living matter acting upon parent material, as conditioned by relief over a period of time.

Soil separates. Mineral particles, less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows: *Very coarse sand* (2.0 to 1.0 millimeter); *coarse sand* (1.0 to 0.5 millimeter); *medium sand* (0.5 to 0.25 millimeter); *fine sand* (0.25 to 0.10 millimeter); *very fine sand* (0.10 to 0.05 millimeter); *silt* (0.05 to 0.002 millimeter); and *clay* (less than 0.002 millimeter).

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soils includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying parent material. The living roots and other plant and animal life characteristic of the soils are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular.* Structureless soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the profile below plow depth.

Substratum. Any layer lying beneath the solum, or true soil; the C or D horizon.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Terrace (geological). An old alluvial plain, ordinarily flat or undulating, bordering a river, lake, or the sea. Stream terraces are frequently called *second bottoms,* as contrasted to *flood plains,* and are seldom subject to overflow. Marine terraces were deposited by the sea and are generally wide.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportions of fine particles, are as follows: sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay'

The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Upland (geologic). Land consisting of material unworked by water in recent geologic time and lying, in general, at a higher elevation than the alluvial plain or stream terrace. Land above the lowlands along rivers.

Understory. The part of a forest that is below the upper crown canopy. Contrasts with overstory.

Volumetric change. The change in volume in a soil mass that occurs when the content of moisture is reduced from a specified moisture content to its content at the limit of shrinkage. The change in volume is expressed as a percentage of the soil mass when it is dry.

GUIDE TO MAPPING UNITS

[See table 2, p. 32, for estimated productivity ratings of each soil and table 1, p. 5, for approximate acreage and proportionate extent of the soils. See pp. 52 to 59 for information on engineering properties of the soils]

Map symbol	Mapping unit	Page	Capability unit		Woodland suitability group		Wildlife suitability group	
			Symbol	Page	Number	Page	Number	Page
Avp	Wet alluvial land	22	IVw-4	29	4	37	1	39
BhA	Bayboro soils	6	Vw-1	30	4	37	1	39
BjA	Bladen loam and clay loam	6	Vw-1	30	4	37	1	39
BkA	Bladen-Coxville-Weston complex	6	IIIw-2	28	2	37	1	39
BnA	Blanton sand, 0 to 2 percent slopes	7	IIIs-3	29	8	38	3	39
DmA	Dunbar fine sandy loam, 0 to 2 percent slopes	7	IIw-2	25	2	37	4	40
DmB	Dunbar fine sandy loam, 2 to 5 percent slopes	8	IIe-3	24	2	37	4	40
EtA	Eulonia loamy fine sand, 0 to 2 percent slopes	8	IIw-3	26	3	37	4	40
EtB	Eulonia loamy fine sand, 2 to 5 percent slopes	8	IIe-3	24	3	37	4	40
Gad	Grady loam	10	IIIw-2	28	4	37	1	39
GCB	Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes	8	IIe-4	25	3	37	5	41
GCB2	Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, eroded	9	IIIe-4	27	3	37	5	41
GCC	Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes	9	IIIe-4	27	3	37	5	41
GCC2	Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes, eroded	9	IVe-4	29	3	37	5	41
GCD	Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes	9	VIe-2	31	3	37	7	42
GCD2	Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes, eroded	9	VIe-2	31	3	37	7	42
GCE2	Gilead, Lakeland, and Sawyer soils, 12 to 17 percent slopes, eroded	9	VIIe-2	31	3	37	7	42
GCF2	Gilead, Lakeland, and Sawyer soils, 17 to 30 percent slopes, eroded	10	VIIe-2	31	3	37	7	42
GnA	Goldsboro loamy sand, thick surface, 0 to 2 percent slopes	10	IIw-2	25	2	37	4	40
GnB	Goldsboro loamy sand, thick surface, 2 to 5 percent slopes	10	IIe-3	24	2	37	4	40
IhA	Irvington loamy sand, thick surface, 0 to 2 percent slopes	11	IIw-2	25	2	37	4	40
IhB	Irvington loamy sand, thick surface, 2 to 5 percent slopes	11	IIe-3	24	2	37	4	40
KhA	Klej sand, 0 to 2 percent slopes	12	IIIw-1	27	8	38	3	39
KiA	Klej sand, shallow, 0 to 2 percent slopes	11	IIIw-1	27	8	38	3	39
LAA	Lakeland sand, shallow, 0 to 2 percent slopes	12	IIIs-1	28	5	37	6	41
LAB	Lakeland sand, shallow, 2 to 5 percent slopes	13	IIIs-1	28	5	37	6	41
LBC	Lakewood coarse sand, 5 to 8 percent slopes	13	VIIs-1	32	6	38	7	42
LpB	Lakeland sand, 0 to 5 percent slopes	12	IVs-1	30	6	38	7	42
LpC	Lakeland sand, 5 to 8 percent slopes	12	IVs-1	30	6	38	7	42
LpD	Lakeland sand, 8 to 12 percent slopes	12	VIs-2	31	6	38	7	42
LrA	Leon sand	13	Vw-4	30	8	38	2	39
LvB	Lynchburg loamy sand, 2 to 5 percent slopes	14	IIe-3	24	2	37	4	40
LwB	Lakeland coarse sand, deep, 2 to 5 percent slopes	12	VIs-2	31	6	38	7	42
LwC	Lakeland coarse sand, deep, 5 to 8 percent slopes	12	VIIs-1	32	6	38	7	42
LzA	Lynchburg loamy sand, thick surface, 0 to 2 percent slopes	14	IIw-2	25	2	37	4	40
MBA	Meggett soils	14	Vw-1	30	4	37	1	39
NfA	Norfolk loamy sand, thick surface, 0 to 2 percent slopes	15	IIs-1	26	1	36	6	41
NfB	Norfolk loamy sand, thick surface, 2 to 5 percent slopes	15	IIs-1	26	1	36	6	41
NhA	Norfolk loamy sand, 0 to 2 percent slopes	15	I-2	24	1	36	6	41
NhB	Norfolk loamy sand, 2 to 5 percent slopes	15	IIe-2	24	1	36	6	41
ObA	Ona sand	16	IIIw-1	27	8	38	3	39
PeA	Plummer soils	16	Vw-2	30	4	37	1	39
Por	Portsmouth loam	16	IIIw-2	28	4	37	1	39
RfA	Rains loamy sand, thick surface	17	IVw-4	29	4	37	1	39
RkA	Rutlege sand	17	Vw-2	30	4	37	1	39
SmD2	Sunsweet soils, 5 to 12 percent slopes, eroded	18	VIe-2	31	7	38	7	42
SmE3	Sunsweet soils, 8 to 17 percent slopes, severely eroded	19	VIIe-2	31	7	38	7	42
SoC	Susquehanna loamy sand, shallow, 2 to 8 percent slopes	19	VIe-2	31	7	38	5	41
Stj	St. Johns sand	18	Vw-2	30	4	37	2	39
Swa	Swamp	19	VIIw-1	31	None		1	39
TqA	Tifton loamy sand, 0 to 2 percent slopes	20	I-2	24	1	36	6	41
TqB	Tifton loamy sand, 2 to 5 percent slopes	20	IIe-2	24	1	36	6	41
TqB2	Tifton loamy sand, 2 to 5 percent slopes, eroded	20	IIe-2	24	1	36	6	41
TrA	Tifton loamy sand, thick surface, 0 to 2 percent slopes	20	IIs-1	26	1	36	6	41
TrB	Tifton loamy sand, thick surface, 2 to 5 percent slopes	20	IIs-1	26	1	36	6	41
TvB	Tifton loamy sand, thin solum, 2 to 5 percent slopes	20	IIe-4	25	1	36	5	41
TvB2	Tifton loamy sand, thin solum, 2 to 5 percent slopes, eroded	20	IIIe-4	27	1	36	5	41
TvC	Tifton loamy sand, thin solum, 5 to 8 percent slopes	21	IIIe-4	27	1	36	5	41
TvC2	Tifton loamy sand, thin solum, 5 to 8 percent slopes, eroded	21	IVe-4	29	1	36	5	41
Waf	Wahee fine sandy loam	21	IIIw-2	28	2	37	4	40
WlA	Weston soils	21	IIw-2	25	4	37	1	39

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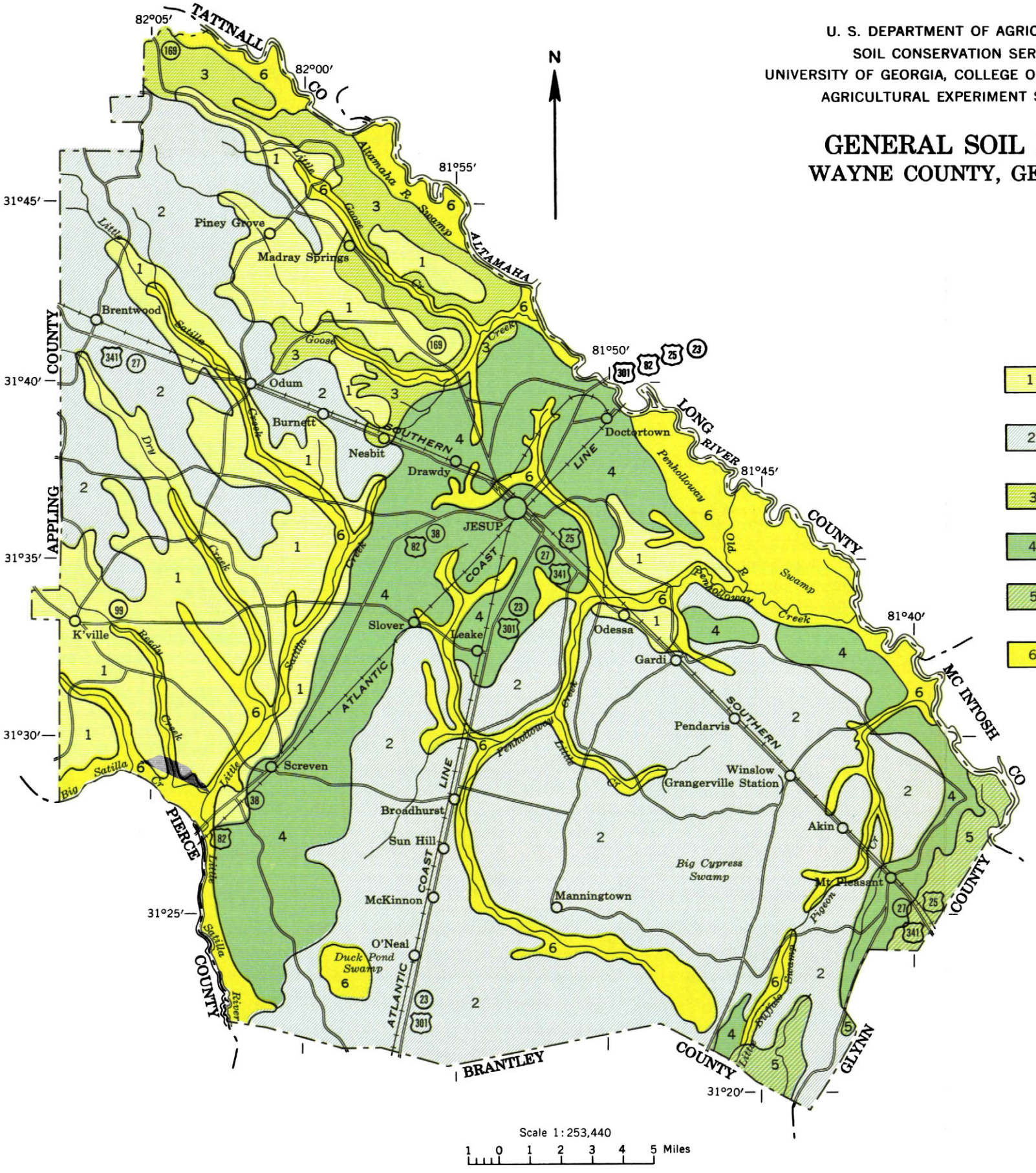
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF GEORGIA, COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATIONS

GENERAL SOIL MAP
WAYNE COUNTY, GEORGIA



Scale 1:253,440
1 0 1 2 3 4 5 Miles

SOIL ASSOCIATIONS

1 — Tifton-Irvington-Goldsboro soil association: Moderately well drained and well drained soils on Coastal Plain uplands

2 — Plummer-Rutlege-Leon soil association: Poorly drained and very poorly drained, sandy soils on Coastal Plain lowlands

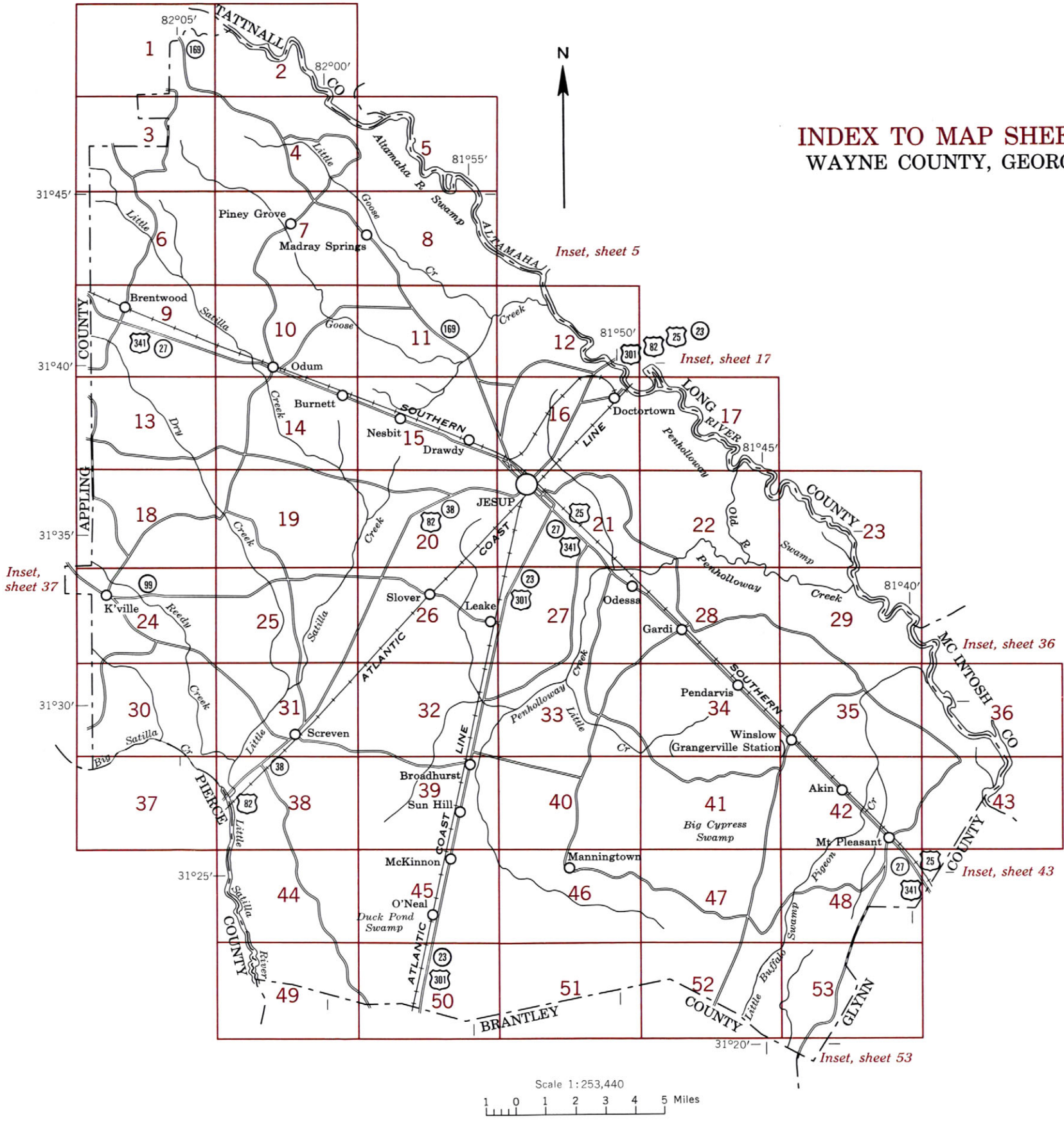
3 — Lakeland-Gilead soil association: Nearly level to steep, well-drained to excessively drained soils on Coastal Plain uplands

4 — Lakeland-Klej-Leon soil association: Soils on broad sand ridges

5 — Weston-Bladen-Coxville-Bayboro soil association: Poorly drained and very poorly drained, fine-textured soils on lowlands

6 — Swamp-Wet alluvial land soil association: Level, poorly drained and very poorly drained, mixed soils in drainageways, small swamps, and large swampy areas

November 1963


INDEX TO MAP SHEETS
WAYNE COUNTY, GEORGIA
N
82°05′
82°00′
81°55′
81°50′
81°45′
81°40′
31°45′
31°40′
31°35′
31°30′
31°25′
31°20′
TATTNALL CO
APPLING COUNTY
PIERCE COUNTY
BRANTLEY COUNTY
GLYNN COUNTY
MC INTOSH CO
LONG COUNTY
Altamaha R.
Swamp
ALTAMAHA
Little
Goose
Creek
Satilla
Dry
Reedy
Big
Cr.
Old R.
Penholloway
Pigeon
Buffalo
Duck Pond Swamp
Big Cypress Swamp
SOUTHERN
ATLANTIC COAST LINE
Piney Grove
Madray Springs
Brentwood
Odum
Burnett
Nesbit
Drawdy
JESUP
Doctortown
Odessa
Gardi
Pendarvis
Winslow
Grangerville Station
Akin
Mt Pleasant
K'ville
Slover
Leake
Screven
Broadhurst
Sun Hill
McKinnon
O'Neal
Manningtown
Inset, sheet 5
Inset, sheet 17
Inset, sheet 36
Inset, sheet 43
Inset, sheet 53
Inset, sheet 37
Scale 1:253,440
1 0 1 2 3 4 5 Miles

SOIL LEGEND

The first letter in each symbol is the initial one of the soil name. If the third letter is a capital, it shows the range of slope from A, less than 2 percent, to F, 17 to 30 percent. A number after the slope letter denotes the class of erosion as given in the soil name.

SYMBOL	NAME
Avp	Wet alluvial land
BhA	Bayboro soils
BjA	Bladen loam and clay loam
BkA	Bladen-Coxville-Weston complex
BnA	Blanton sand, 0 to 2 percent slopes
DmA	Dunbar fine sandy loam, 0 to 2 percent slopes
DmB	Dunbar fine sandy loam, 2 to 5 percent slopes
EtA	Eulonia loamy fine sand, 0 to 2 percent slopes
EtB	Eulonia loamy fine sand, 2 to 5 percent slopes
Gad	Grady loam
GCB	Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes
GCB2	Gilead, Lakeland, and Sawyer soils, 2 to 5 percent slopes, eroded
GCC	Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes
GCC2	Gilead, Lakeland, and Sawyer soils, 5 to 8 percent slopes, eroded
GCD	Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes
GCD2	Gilead, Lakeland, and Sawyer soils, 8 to 12 percent slopes, eroded
GCE2	Gilead, Lakeland, and Sawyer soils, 12 to 17 percent slopes, eroded
GCF2	Gilead, Lakeland, and Sawyer soils, 17 to 30 percent slopes, eroded
GnA	Goldsboro loamy sand, thick surface, 0 to 2 percent slopes
GnB	Goldsboro loamy sand, thick surface, 2 to 5 percent slopes
IhA	Irvington loamy sand, thick surface, 0 to 2 percent slopes
IhB	Irvington loamy sand, thick surface, 2 to 5 percent slopes
KhA	Klej sand, 0 to 2 percent slopes
KiA	Klej sand, shallow, 0 to 2 percent slopes
LAA	Lakeland sand, shallow, 0 to 2 percent slopes
LAB	Lakeland sand, shallow, 2 to 5 percent slopes
LBC	Lakewood coarse sand, 5 to 8 percent slopes
LpB	Lakeland sand, 0 to 5 percent slopes
LpC	Lakeland sand, 5 to 8 percent slopes
LpD	Lakeland sand, 8 to 12 percent slopes
LrA	Leon sand
LvB	Lynchburg loamy sand, 2 to 5 percent slopes
LwB	Lakeland coarse sand, deep, 2 to 5 percent slopes
LwC	Lakeland coarse sand, deep, 5 to 8 percent slopes
LzA	Lynchburg loamy sand, thick surface, 0 to 2 percent slopes
MBA	Meggett soil
NfA	Norfolk loamy sand, thick surface, 0 to 2 percent slopes
NfB	Norfolk loamy sand, thick surface, 2 to 5 percent slopes
NhA	Norfolk loamy sand, 0 to 2 percent slopes
NhB	Norfolk loamy sand, 2 to 5 percent slopes
ObA	Ona sand
PeA	Plummer soils
Por	Portsmouth loam
RfA	Rains loamy sand, thick surface
RkA	Rutlege sand
SmD2	Sunsweet soils, 5 to 12 percent slopes, eroded
SmE3	Sunsweet soils, 8 to 17 percent slopes, severely eroded
SoC	Susquehanna loamy sand, shallow, 2 to 8 percent slopes
Stj	St. Johns sand
Swa	Swamp
TqA	Tifton loamy sand, 0 to 2 percent slopes
TqB	Tifton loamy sand, 2 to 5 percent slopes
TqB2	Tifton loamy sand, 2 to 5 percent slopes, eroded
TrA	Tifton loamy sand, thick surface, 0 to 2 percent slopes
TrB	Tifton loamy sand, thick surface, 2 to 5 percent slopes
TvB	Tifton loamy sand, thin solum, 2 to 5 percent slopes
TvB2	Tifton loamy sand, thin solum, 2 to 5 percent slopes, eroded
TvC	Tifton loamy sand, thin solum, 5 to 8 percent slopes
TvC2	Tifton loamy sand, thin solum, 5 to 8 percent slopes, eroded
Waf	Wahee fine sandy loam
WlA	Weston soils

Soil map constructed 1963 by Cartographic Division, Soil Conservation Service, USDA, from 1953 aerial photographs. Controlled mosaic based on Georgia plane coordinate system, east zone, transverse Mercator projection. 1927 North American datum.

CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads
- Dual
- Good motor
- Poor motor
- Trail

Highway markers
- National Interstate
- U. S.
- State

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail, foot
- Railroad
- Ferries
- Ford
- Grade
- R. R. over
- R. R. under
- Tunnel

Buildings
- School
- Church
- Station

Mines and Quarries

Mine dump

Pits, gravel or other

Power lines

Pipe lines

Cemeteries

Dams

Levees

Tanks

Sawmill

Lookout tower

BOUNDARIES

- National or state
- County
- Reservation
- Land grant

DRAINAGE

Streams
- Perennial
- Intermittent, unclass.

Canals and ditches — CANAL / DITCH

Lakes and ponds
- Perennial
- Intermittent

Wells — flowing

Springs

Marsh

Wet spot

Alluvial fan

RELIEF

Escarpments
- Bedrock
- Other

Prominent peaks

Depressions

	Large	Small
Crossable with tillage implements		
Not crossable with tillage implements		
Contains water most of the time		

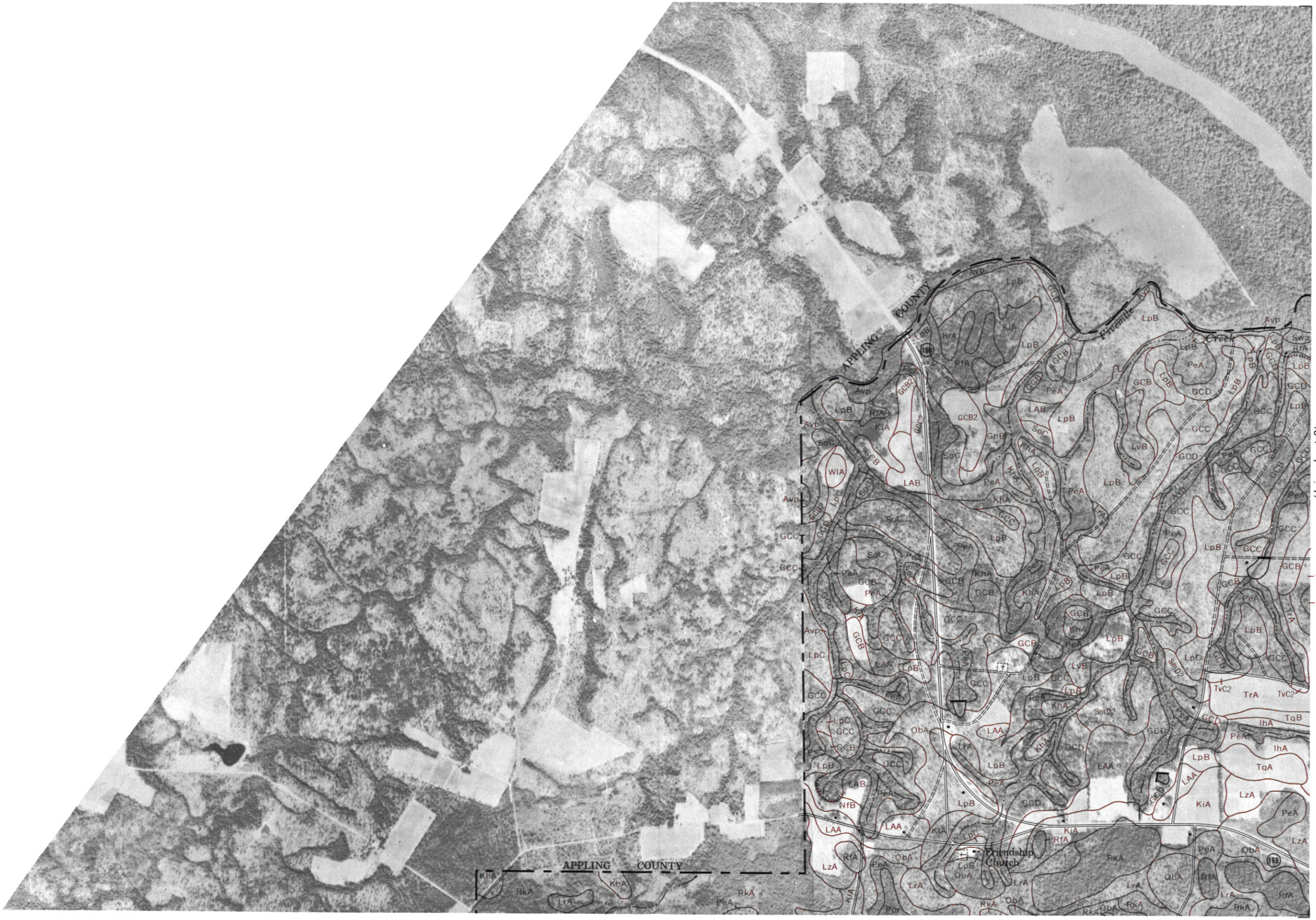
SOIL SURVEY DATA

- Soil boundary and symbol — Dx
- Gravel
- Stones
- Rock outcrops
- Chert fragments
- Clay spot
- Sand spot
- Gumbo or scabby spot
- Made land
- Severely eroded spot
- Blowout, wind erosion
- Gullies

WAYNE COUNTY, GEORGIA — SHEET NUMBER 1

1

N



(Joins sheet 2)

(Joins sheet 3)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

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2

N

(Joins sheet 1)

APPLING CO

Creek

Ftwemile

Swa

TATTNALL COUNTY

ALTAMAHA RIVER

Rocky Lake

Swa

TATTNALL COUNTY

Swa

RtA LpB PeA GCD GCC GCB SoC GCE2 LpC Avp LAB GCF2 TrA SmD2 TrB TqB IhA SmE3 TvB2 TqA LzA LrA RfA TyC2 LvB GnB 169

(Joins sheet 4)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 3

(Joins sheet 1)

3

N

APPLING COUNTY

APPLING COUNTY

Glover Creek

(Joins sheet 4)

(Joins sheet 6)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

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4

N

(Joins sheet 2)

(Joins sheet 3)

(Joins sheet 5)

(Joins sheet 7)

ALTAMAHA RIVER

TATTNALL COUNTY

Fort James Bluff

New Hope Church

Creek

Branch

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

N

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(Joins sheet 4)

(Joins sheet 8)

(Joins sheet 12)

(Joins sheet 8)

LONG COUNTY

TATTNALL COUNTY

ALTAMAHA RIVER

SWAMP

Swa

GCE2 LpB PeA GCD2 SmE3 LpC LzA NfA ObA StA KrA RfA LAA TqB2 TvC LAB TqA NhB NfB TvB2 GCC2 TrB TrA GCB GCD LpD RfA Avp SmD2 TqB TvC2 TrB GCC TqB NfA GnA LAA TvC2 TrB GCC2 GCC

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 6

(6)

N

(Joins sheet 3)

APPLING COUNTY

(Joins sheet 7)

(Joins sheet 9)

Little Satilla Creek

Satilla Creek

Prey Branch

Neva Church

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 7

(Joins sheet 4)

7

N

(Joins sheet 6)

(Joins sheet 8)

(Joins sheet 10)

Piney Grove

Goose Creek

Little Goose Creek

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

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8

N

(Joins sheet 5)

(Joins sheet 7)

(Joins sheet 11)

(Joins inset, sheet 5)

ALTAMAHA RIVER SWAMP

ALTAMAHA RIVER

LONG COUNTY

Altamaha Church

Madray Springs

Blanton Grove Church

Oglethorpe Bluff

Holstein

Little Creek

Little Creek

Branch

Branch

Creek

Creek

Groove

Groove

Ogeechee

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 9

(Joins sheet 6)

(Joins sheet 10)

(Joins sheet 13)

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APPLING COUNTY

SOUTHERN

Brentwood

Dry Creek

Little Satilla Creek

Tetlow

SOUTHERN

N

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 10

(10)

N

(Joins sheet 7)

(Joins sheet 9)

(Joins sheet 11)

(Joins sheet 14)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 11

(Joins sheet 8)

(Joins sheet 10)

(Joins sheet 12)

(Joins sheet 15)

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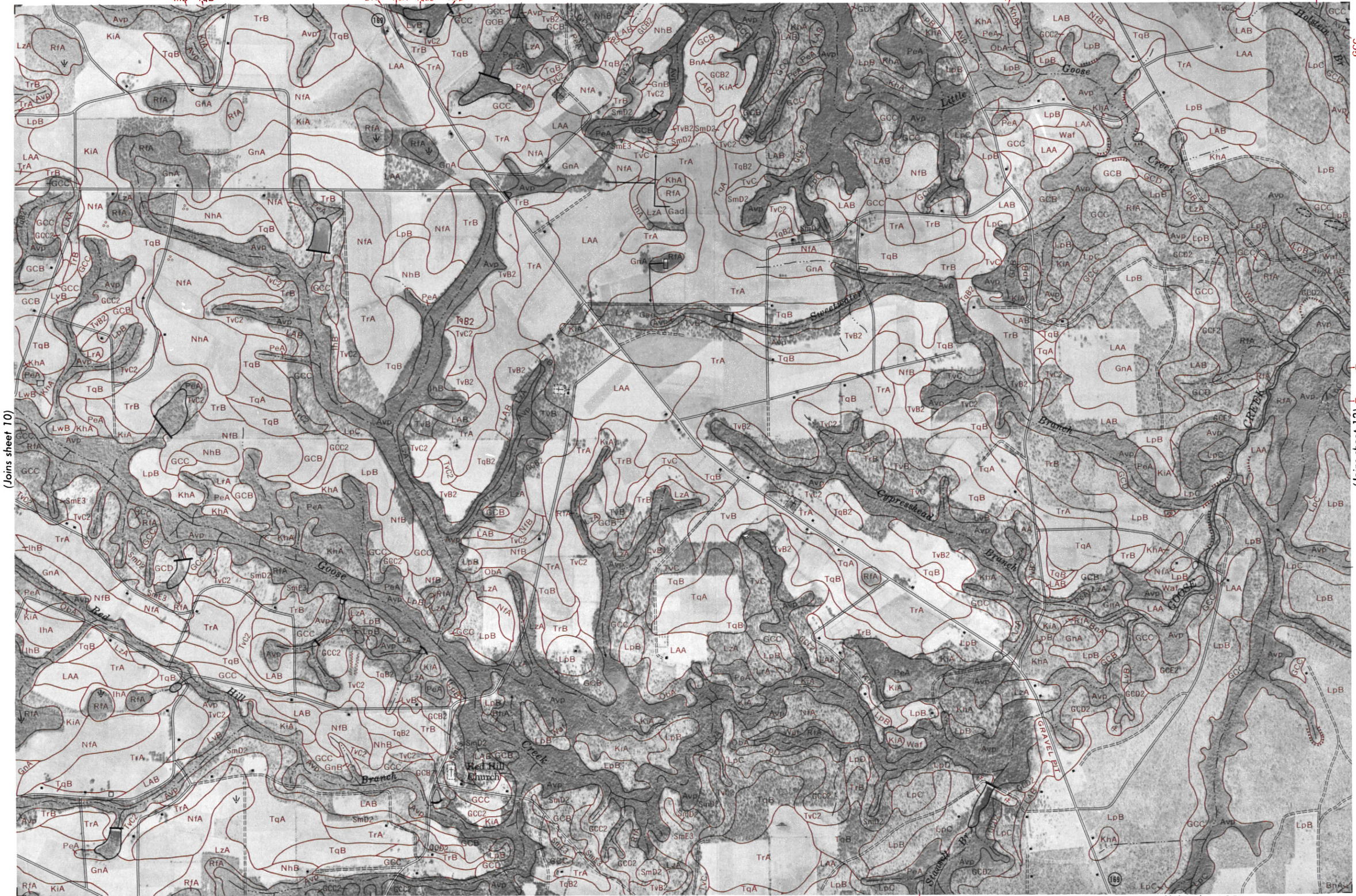

12

(Joins inset, sheet 5)

N

GOOSE CREEK

LONG COUNTY

ALTAMAHA RIVER

Linden Bluff

Bugges Bluff

Riverside Park

Holsomeche Branch

SOUTHERN

LONG COUNTY

(Joins sheet 11)

(Joins sheet 16)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 13

(Joins sheet 9)

13

N

(Joins sheet 14)

(Joins sheet 18)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

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WAYNE COUNTY, GEORGIA — SHEET NUMBER 14

14

(Joins sheet 10)

N

(Joins sheet 13)

(Joins sheet 15)

(Joins sheet 19)

Burnett

SOUTHERN

Little Satilla Creek

Swamp Creek

Old Bethel Church

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 15

(Joins sheet 11)

15

N

(Joins sheet 14)

(Joins sheet 16)

Redland

Nesbit

Drawdy

WAYNE COUNTY BRANCH
GEORGIA STATE PRISON

Wayne County School

SOUTHERN

Stunsell Branch

Dobson Mill Branch

(Joins sheet 20)

Scale 1: 20 000

0 ½ 1 Mile

0 5000 Feet

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16

N

(Joins sheet 12)

(Joins sheet 15)

(Joins sheet 17)

(Joins sheet 21)

SOUTHERN

ALTAMAHA

LONG COUNTY

RIVER

PENHOLLOWAY SWAMP

Doctortown

Spring Grove Church

Little Creek

McMullen Creek

SEWAGE DISPOSAL PLANT

CITY DUMP

ATLANTIC COAST LINE

SOUTHERN

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

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(Joins inset, lower right)

(Joins sheet 16)

(Joins upper left)

(Joins sheet 22)

N

0 ½ 1 Mile

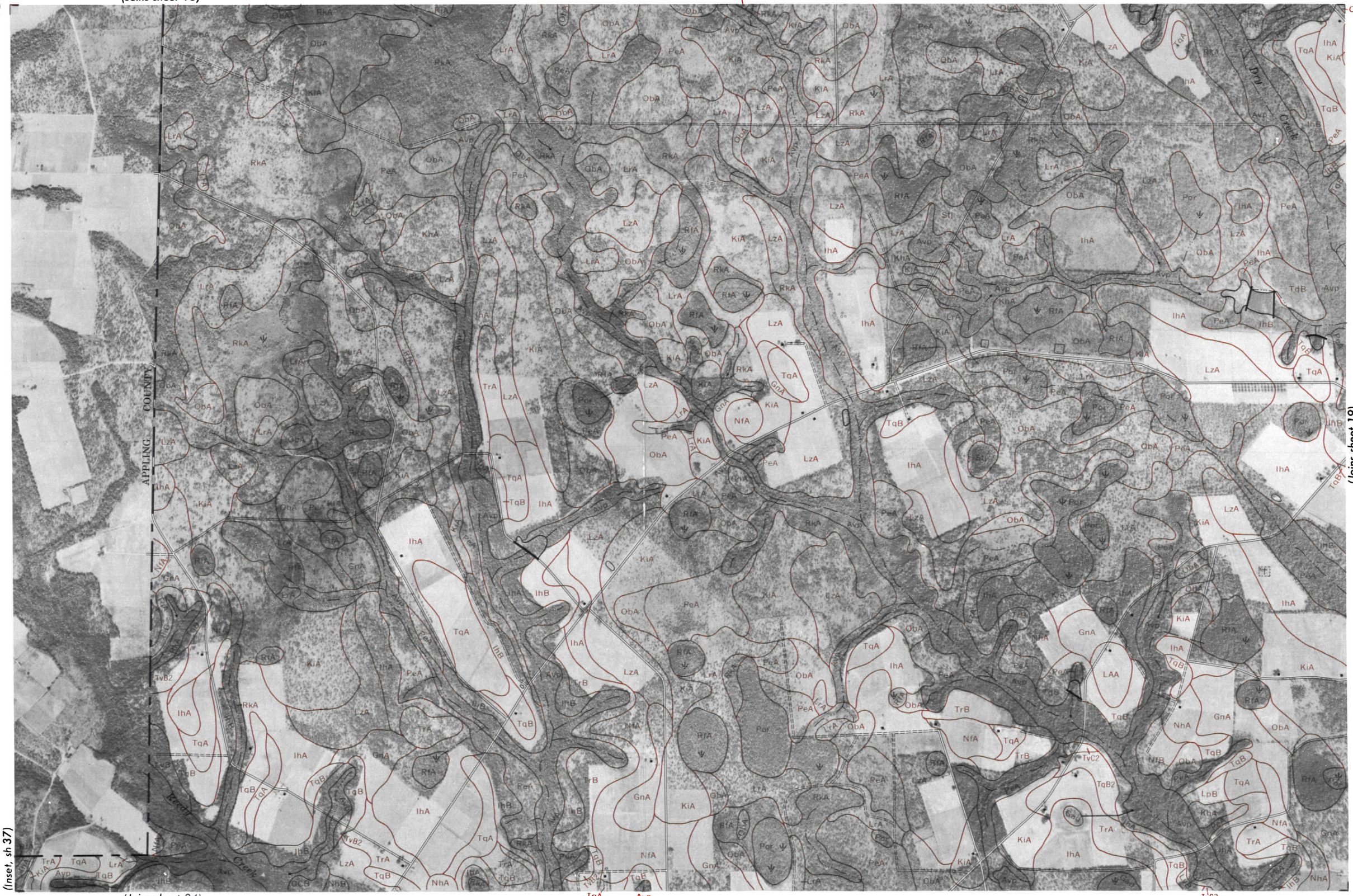
Scale 1: 20 000

0 5000 Feet

18

(Joins sheet 13)

N



(Joins sheet 19)

(Inset, sh 37)

(Joins sheet 24)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 19

(Joins sheet 14)

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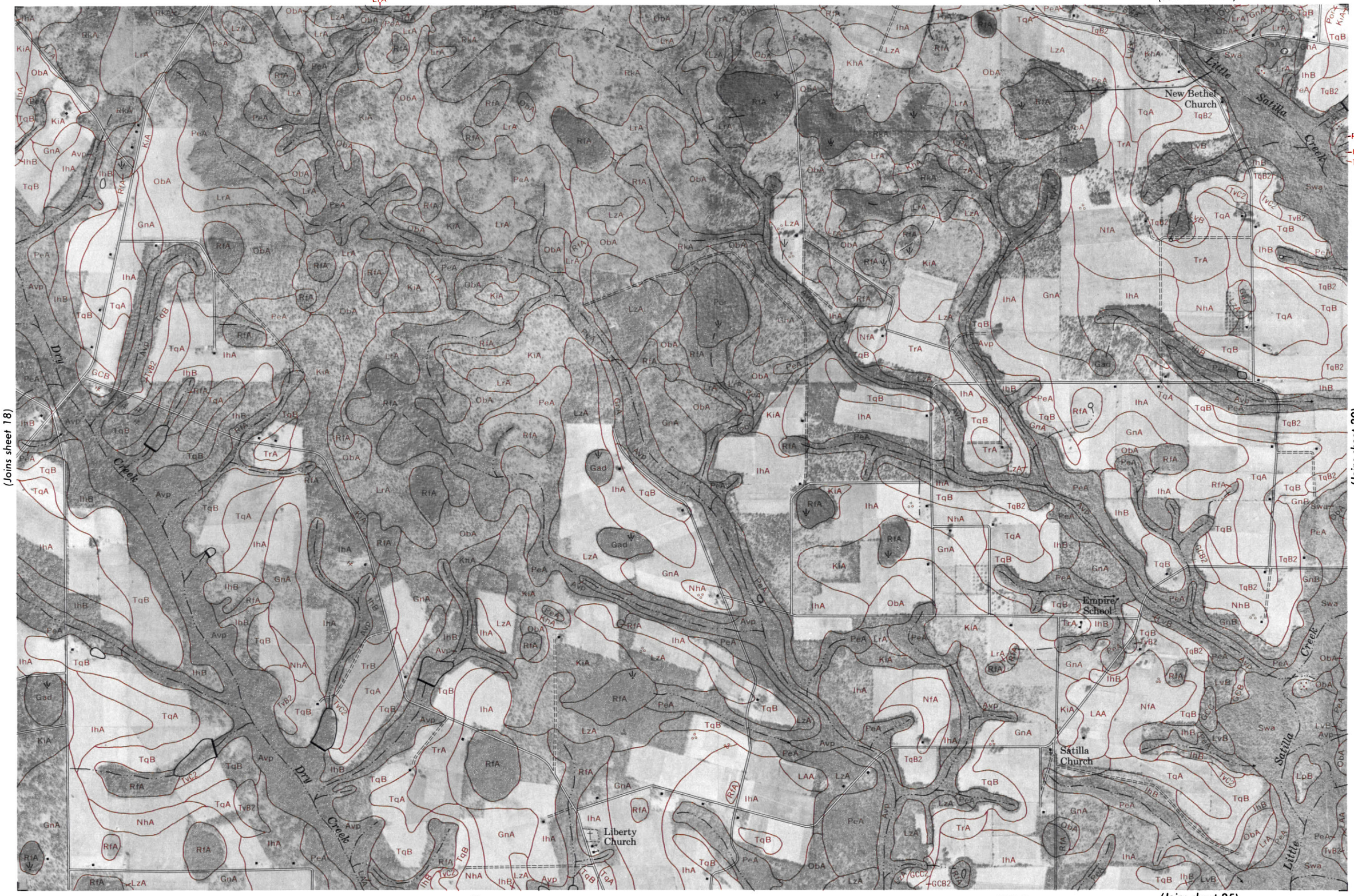


20

(Joins sheet 15)

N

(Joins sheet 19)

(Joins sheet 21)

(Joins sheet 26)

JESUP

Flint Branch Church

Radio Tower

Dobson Creek

Satilla

Little Satilla

Mill Branch

Moseley Bay

Miliken Bay

Walker Creek

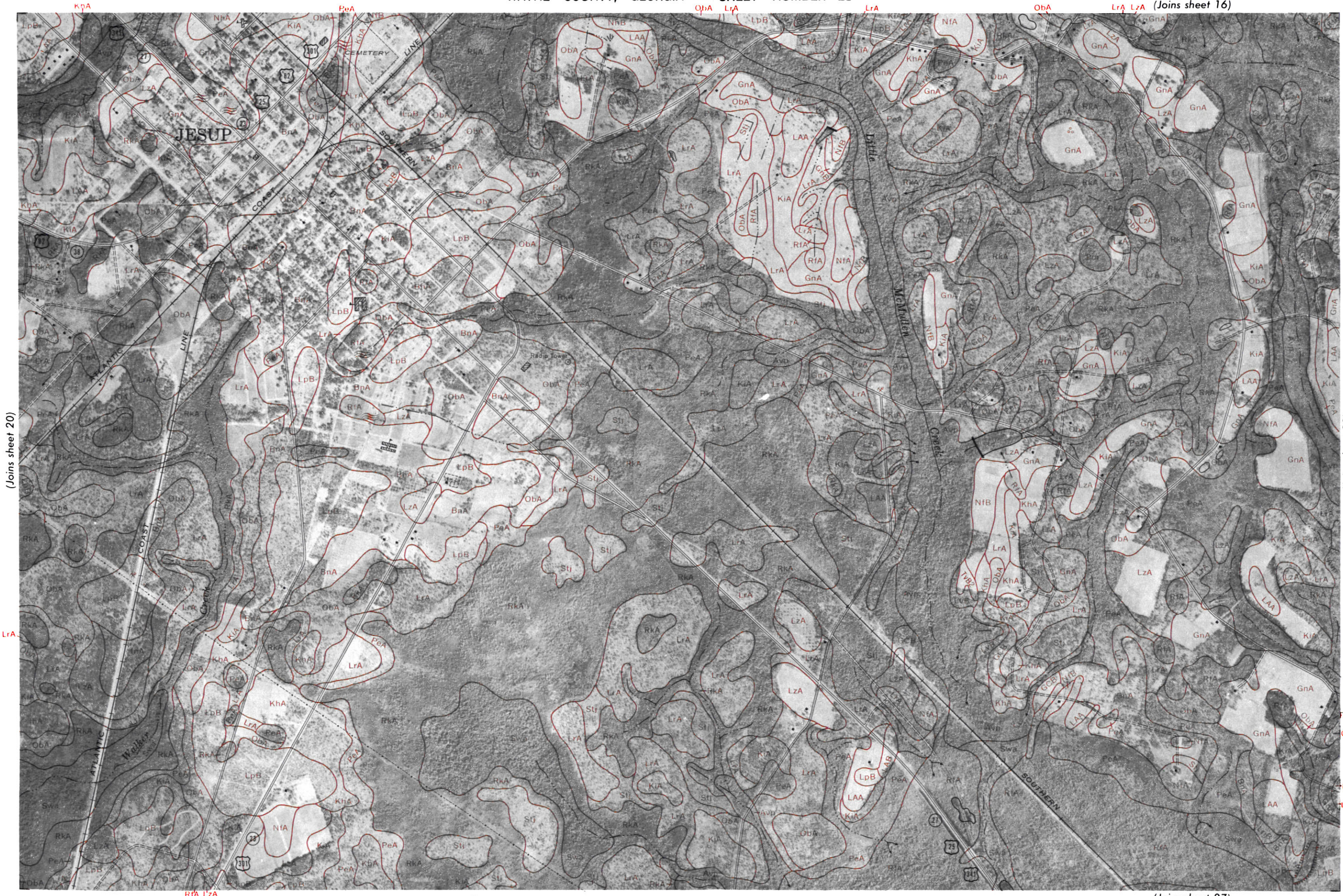
COASTLINE ATLANTIC

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 21



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22

N

(Joins sheet 17)

(Joins sheet 21)

(Joins sheet 23)

(Joins sheet 28)

PENHOLLOWAY OLD RIVER

ALTAMAHA LONG COUNTY RIVER

SWAMP

Gardner Lake

Sunday Lake

Kentucky Island

BALLS ISLAND

MacFishery Landing

Bonnet Lake

Diana Slough

Little Diana Slough

Bethlehem Church

PENHOLLOWAY CREEK

Gardi Cr

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

N

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(Joins sheet 22)

LONG COUNTY

ALTAMAHA RIVER

PENHOLLOWAY SWAMP

OLD RIVER

LONG COUNTY

Swa

(Joins sheet 29)

0 ½ 1 Mile

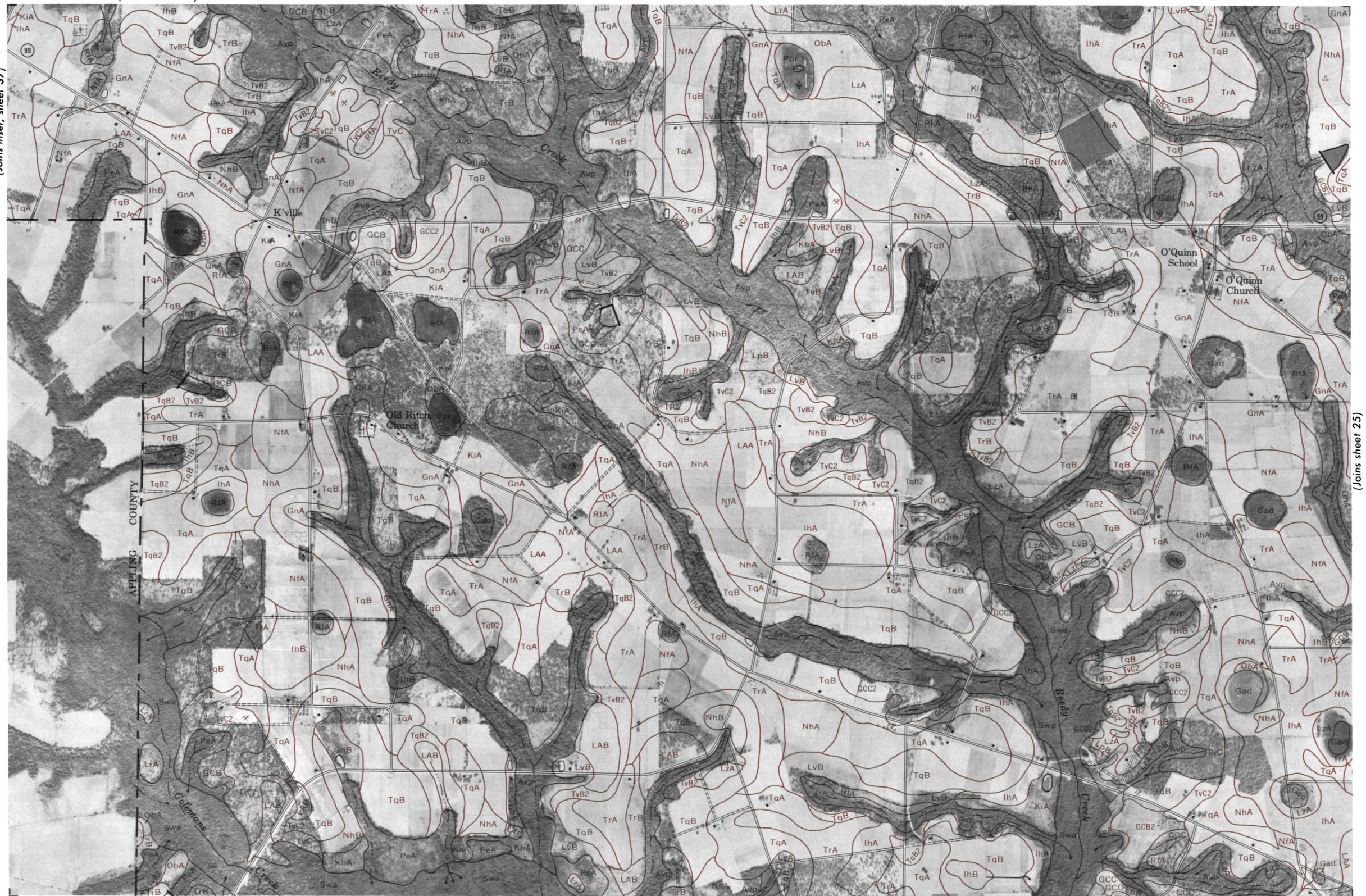
Scale 1: 20 000

0 5000 Feet

(24)

(Joins sheet 18)

N (Joins inset, sheet 37)



(Joins sheet 25)

(Joins sheet 30)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 25

(Joins sheet 19)

25

N

(Joins sheet 24)

(Joins sheet 26)

(Joins sheet 31)

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0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

(26)

(Joins sheet 20)

N

(Joins sheet 25)

(Joins sheet 27)

(Joins sheet 32)

Slover

Leake

Walker Creek

COAST LINE

ATLANTIC COAST LINE

Walker Creek

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 27

(Joins sheet 21)

(Joins sheet 26)

(Joins sheet 28)

(Joins sheet 33)

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Scale 1: 20 000

0 ½ 1 Mile

0 5000 Feet

28

N

(Joins sheet 22)

(Joins sheet 27)

(Joins sheet 29)

(Joins sheet 34)

Gardi

Pendarvis

Oak Landing

PENHOLLOWAY CREEK

Gardi Creek

Garth Creek

SOUTHERN

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

(Joins sheet 23)

29

N

PENHOLLOWAY SWAMP

PENHOLLOWAY CREEK

Ox Lott Landing

Paradise Park

LONG COUNTY

ALTAMAHA RIVER

LONG COUNTY

MCINTOSH COUNTY

Codgen Lake

(Joins sheet 28)

(Joins sheet 35)

(Joins inset, sheet 36)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

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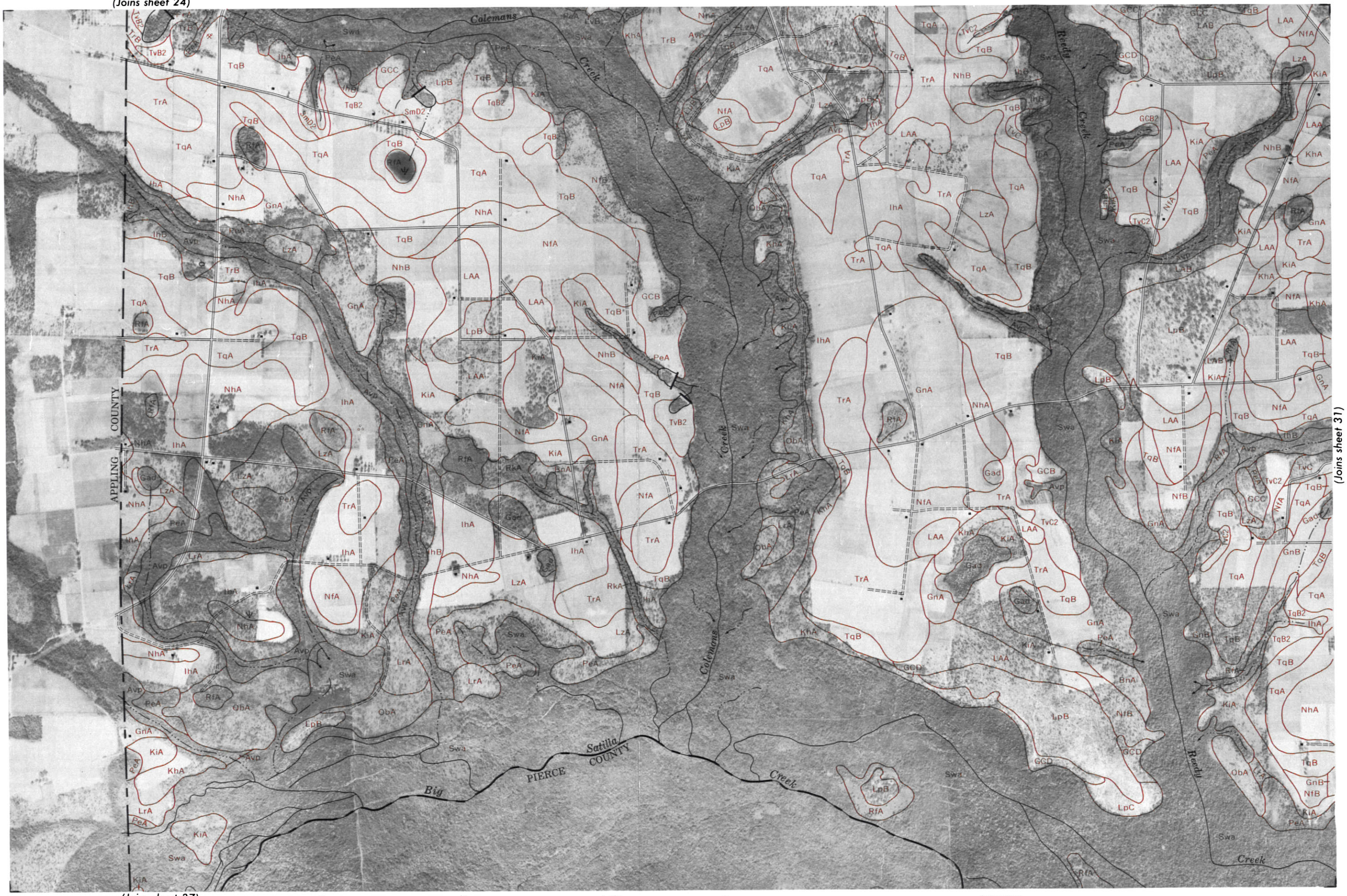
30

N

(Joins sheet 24)



(Joins sheet 31)

(Joins sheet 37)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 31

(31)

(Joins sheet 25)

(Joins sheet 30)

(Joins sheet 32)

(Joins sheet 38)

N

Screven

Screven Church

Dry Creek

Little Satilla Creek

Satilla Creek

Little Reedy Cr

ATLANTIC COAST LINE

82 38

Scale 1: 20 000

0 ½ 1 Mile

0 5000 Feet

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32

N

(Joins sheet 26)

(Joins sheet 31)

(Joins sheet 33)

(Joins sheet 39)

Atlantic Coast Line

Walker Creek

Penholloway

Little Creek

Atlantic Coast Line

Penholloway Creek

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 33

(Joins sheet 27)

33

N

(Joins sheet 32)

(Joins sheet 34)

(Joins sheet 40)

Little Penholloway Creek

Penholloway Creek

Little Creek

Little Creek Church

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

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34

N

(Joins sheet 28)

(Joins sheet 33)

(Joins sheet 35)

(Joins sheet 41)

Pendarvis

SOUTHERN

Little Creek

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 35

(Joins sheet 29)

(Joins sheet 34)

(Joins sheet 36)

(Joins sheet 42)

N

Union Church

Winslow (Grangerville Station)

Alex Creek

Cowpen Branch

Mosquito Creek

SOUTHERN

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

This map is one of a set compiled in 1963 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

36

(Joins inset, lower right)

N

(Joins sheet 35)

(Joins sheet 43)

(Joins sheet 29)

(Joins upper left)

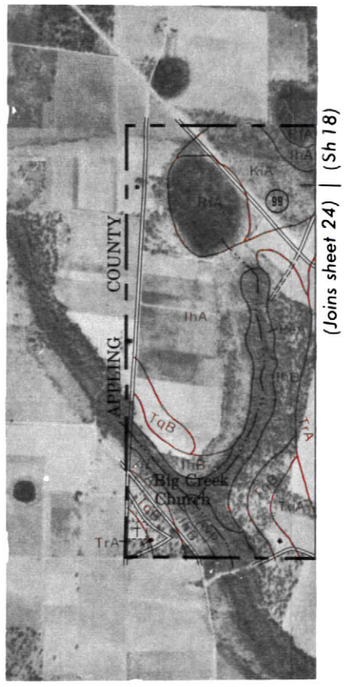
Avp

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

(Joins sheet 30)



(Joins sheet 24) | (Sh 18)

N

(Joins sheet 38)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

This map is one of a set compiled in 1963 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

WAYNE COUNTY, GEORGIA — SHEET NUMBER 38

(38)

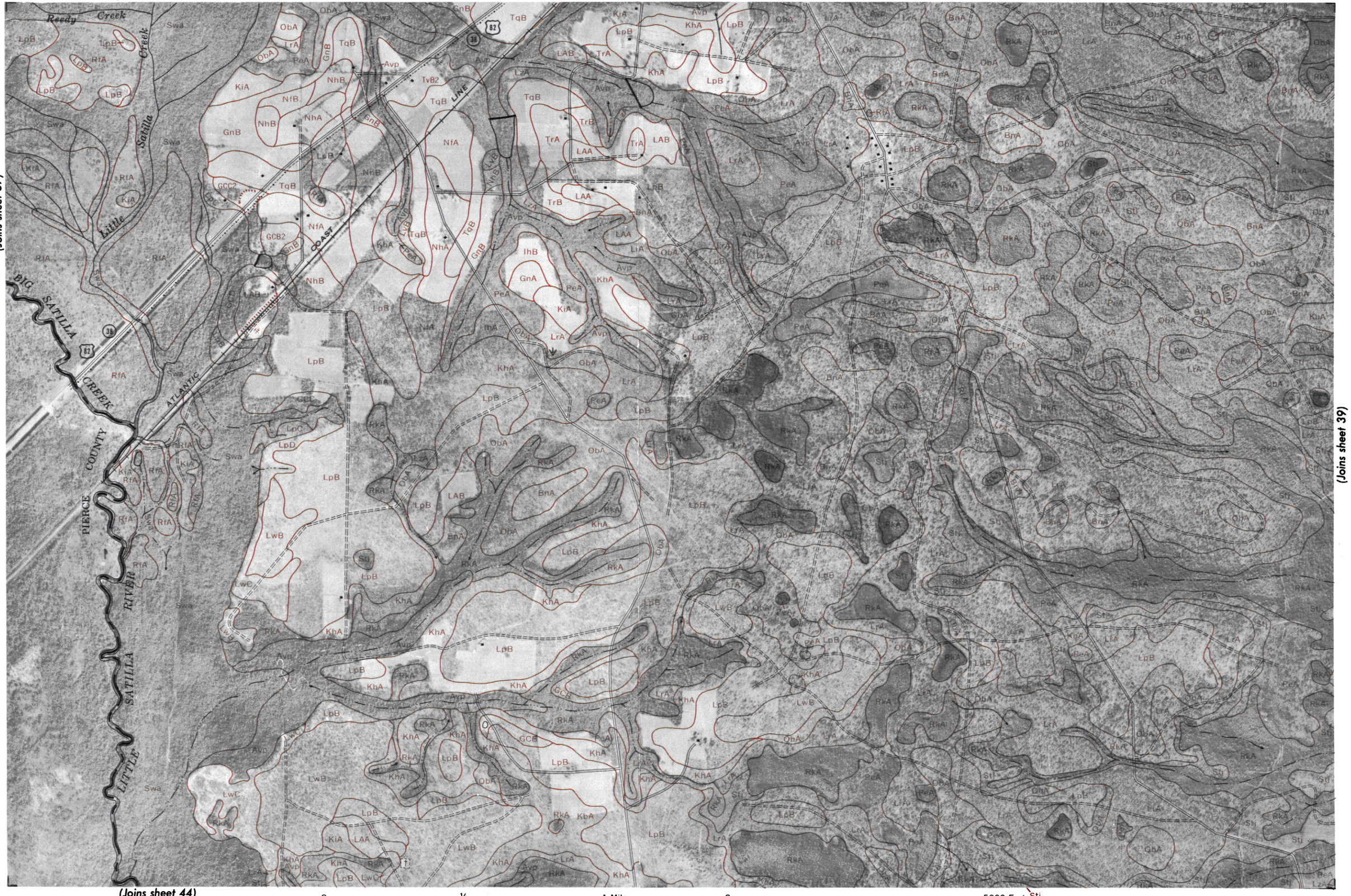
(Joins sheet 31)

N

(Joins sheet 37)

(Joins sheet 39)

(Joins sheet 44)



0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 39

(Joins sheet 32)

N

This map is one of a set compiled in 1963 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

(Joins sheet 38)

(Joins sheet 40)

(Joins sheet 45)

Broadhurst

Sun Hill

Penholloway Creek

Little Penholloway Creek

ATLANTIC COAST LINE

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 40

40

(Joins sheet 33)

N

(Joins sheet 39)

(Joins sheet 41)

(Joins sheet 46)

0 ½ 1 Mile

Scale 1: 20 000

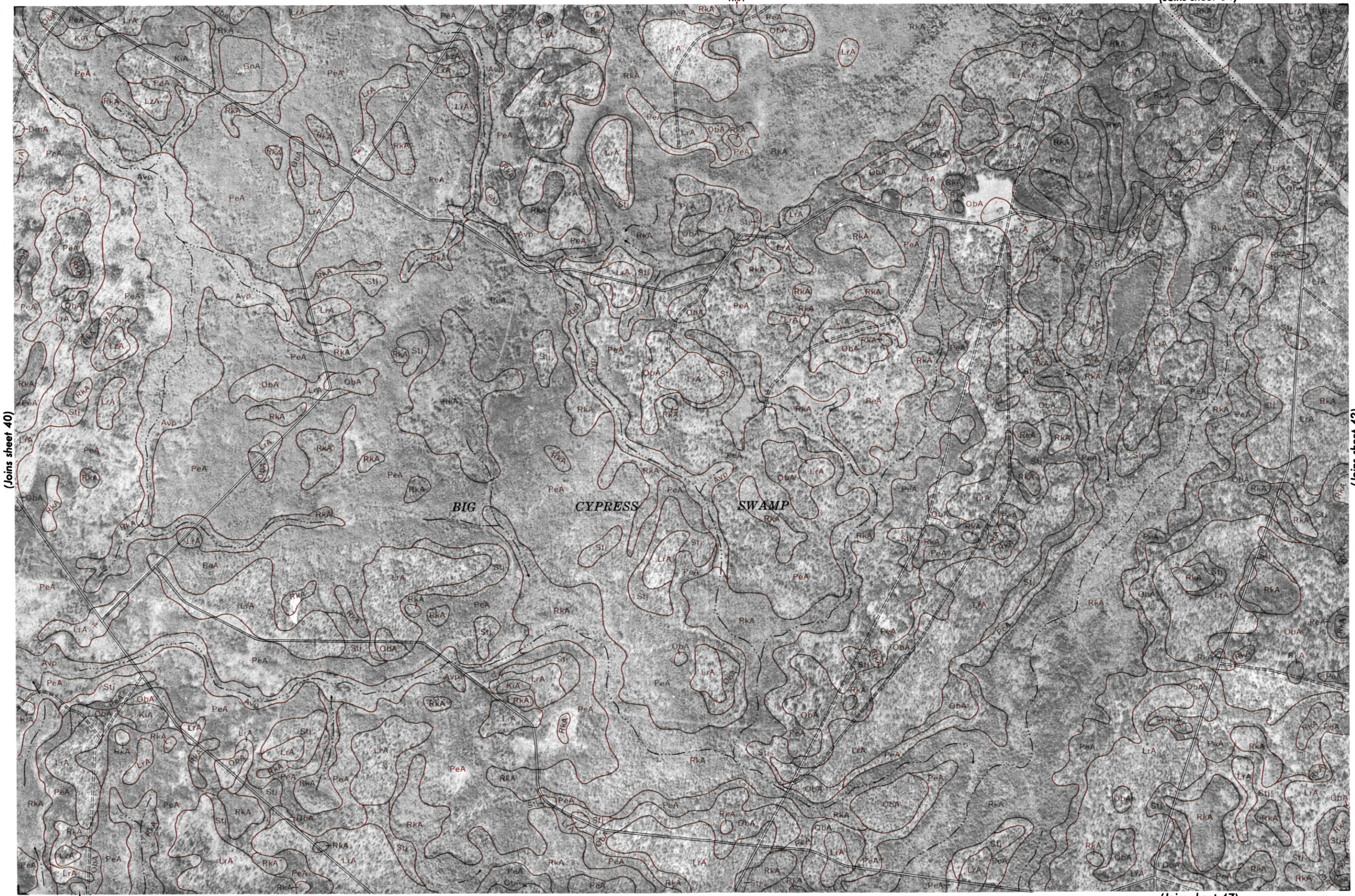
0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 41

(Joins sheet 34)

41

N



(Joins sheet 40)

(Joins sheet 42)

(Joins sheet 47)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

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42

(Joins sheet 35)

N

SOUTHERN

Mason Cowper Branch

Alex Creek

Pigeon Creek

Akin

Akin Church

Mt Pleasant

Roost Creek

Pigeon Creek

Johns Branch

(Joins sheet 41)

(Joins sheet 43)

(Joins sheet 48)

Scale 1: 20 000

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1963 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

(Joins sheet 36)

(Joins sheet 42)

(Joins inset, upper right)

(Joins lower left)

(Joins sheet 48)

N

ALTAMAHA RIVER

McINTOSH COUNTY

GLYNN COUNTY

Deep Branch

Smith Branch

Bridge Creek

Johns Bay

SOUTHERN

341

25

17

0 ½ 1 Mile

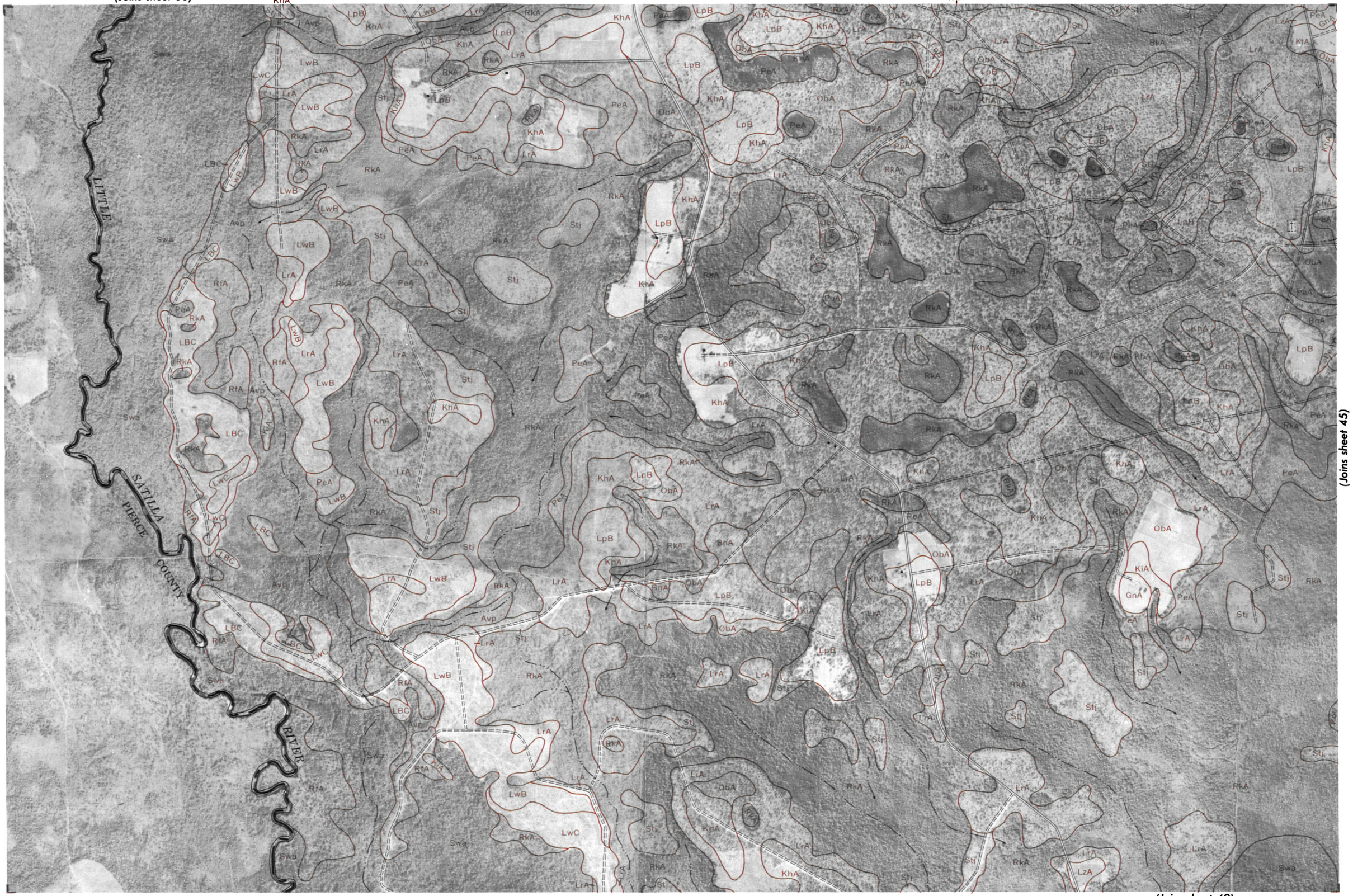
Scale 1: 20 000

0 5000 Feet

(44)

(Joins sheet 38)

N



(Joins sheet 45)

(Joins sheet 49)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 45

(Joins sheet 39)

45

N

(Joins sheet 44)

(Joins sheet 46)

(Joins sheet 50)

This map is one of a set compiled in 1963 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

McKinnon

O'Neal

Duck Pond Swamp

COAST LINE

ATLANTIC COAST LINE

Pembrookaway Creek

0 ½ 1 Mile

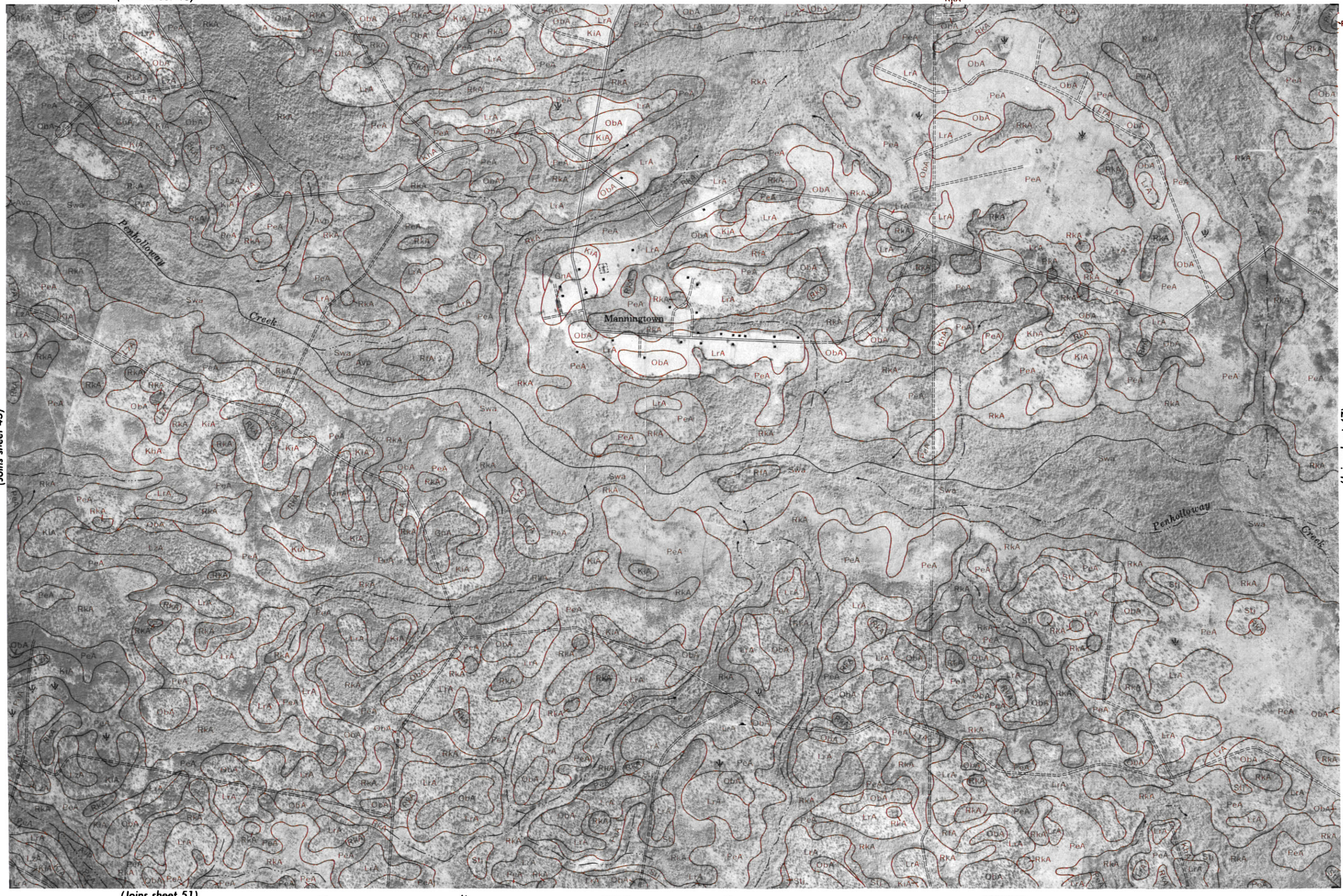
Scale 1: 20 000

0 5000 Feet

46

(Joins sheet 40)

N



(Joins sheet 45)

(Joins sheet 47)

(Joins sheet 51)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 47

(Joins sheet 41)

(Joins sheet 46)

(Joins sheet 48)

(Joins sheet 52)

N

Penholloway Creek

Penholloway Bay

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

This map is one of a set compiled in 1963 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

WAYNE COUNTY, GEORGIA — SHEET NUMBER 48

(48)

(Joins sheet 42)

N

(Joins sheet 47)

(Joins inset, sheet 43)

(Joins sheet 53)

Pigeon Creek

Roost Creek

Buffalo Swamp

SOUTHERN

GLYNN COUNTY

0 ½ 1 Mile

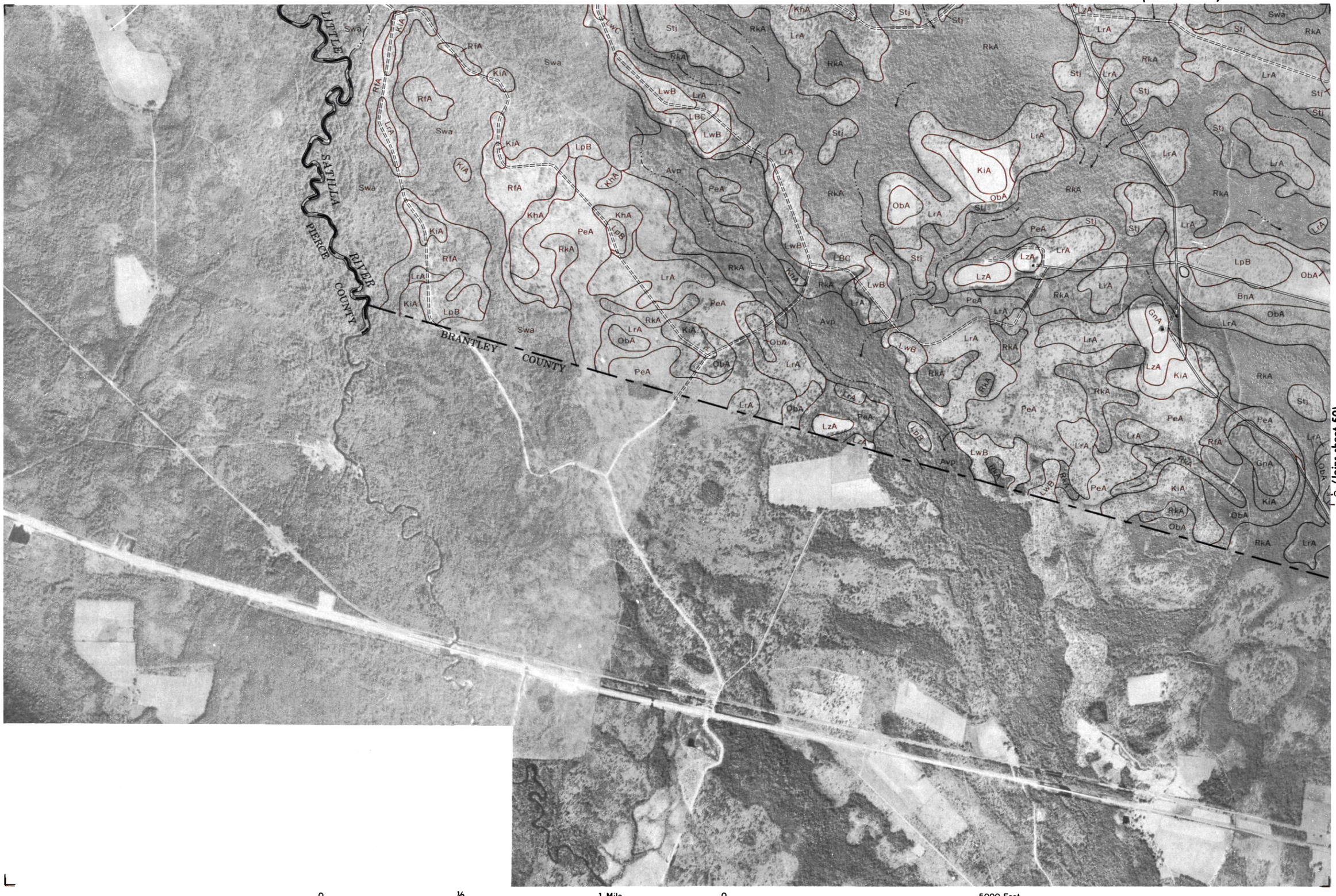
Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 49

(Joins sheet 44)

This map is one of a set compiled in 1963 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.



0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

(Joins sheet 45)

(Joins sheet 49)

(Joins sheet 51)

N

LrA

PeA

RkA

COAST LINE

ATLANTIC

Suwanee Creek

Sawgrass Church

BRANTLEY COUNTY

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

WAYNE COUNTY, GEORGIA — SHEET NUMBER 51

(Joins sheet 46)

N

(Joins sheet 50)

(Joins sheet 52)

BRANTLEY COUNTY

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

This map is one of a set compiled in 1963 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

52

(Joins sheet 47)

N

Penholloway Bay

Swamp

Little Buffalo

BRANTLEY COUNTY

(Joins sheet 51)

(Joins sheet 53)

(Joins inset, sheet 53)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1963 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Georgia College of Agriculture, Agricultural Experiment Stations.

(Joins sheet 48)

(Joins sheet 52)

(Joins sheet 52) | (Joins lower left)

(Joins inset, upper right)

Little Buffalo Swamp

Hopewell Church

Swamp

Ternmile

BRANTLEY COUNTY

GLYNN COUNTY

N

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet